DOCUMENT RESUME

ED 412 417 CE 074 991

AUTHOR	Onstenk, Jeroen; Voncken, Eva
TITLE	The Role of the Company in Generating Skills. The Learning Effects of Work Organization. The Netherlands.
INSTITUTION	European Centre for the Development of Vocational Training, Thessaloniki (Greece).
ISBN	ISBN-92-827-0374-6
PUB DATE	1993-06-00
NOTE	81p.; For related documents, see ED 407 592 and CE 074 952-953.
AVAILABLE FROM	Bernan Associates, 4611-F Assembly Drive, Lanham, MD 20706-4391; phone: 800/274-4888 (catalogue no. HX-96-96-271-EN-C: 8 European Currency Units).
PUB TYPE	Reports - Research (143)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Adult Education; Case Studies; *Education Work Relationship; Educational Attitudes; Educational Change; Educational Needs; Educational Policy; Educational Supply; Educational Trends; Employer Attitudes; Employment Practices; Employment Qualifications; Financial Support; Foreign Countries; Government School Relationship; Industrial Training; Labor Market; Off the Job Training; *On the Job Training; Organizational Development; Secondary Education; *Skill Development; Synthesis; Trend Analysis; *Vocational Education
IDENTIFIERS	Impact Studies; *Learning Organizations; *Netherlands

ABSTRACT

The impact of developments in work organizations on the skilling process in the Netherlands was studied through a macro analysis of available statistical information about the development of education for work in the Netherlands and case studies of three Dutch firms. The macro analysis focused on the following: vocational education in the Netherlands, adult education and in-house training, and developments in the Dutch labor market. The case studies examined the organizational structures and training practices of three companies: a pharmaceutical factory that has computerized its production control system, an adhesive manufacturer that has radically changed its job structure without extensive renovation of its production process, and the production automation department of a large bank. Among the main findings were the following: (1) vocational and adult education are being restructured, and the connections between them are increasing; (2) Dutch firms' training efforts are increasing, and their training policies are broadening their focus from eliminating shortcomings in workers' qualifications to preparing for ongoing changes in the work organization; and (3) although industry's involvement in vocational education is generally increasing, the study firms have not appreciably altered their relations with regional intermediate vocational education. (Ten tables and 37 references are included.) (MN)

CEDEFOP Document

The role of the company in generating skills

The learning effects of work organization

The Netherlands

European Centre for the Development of Vocational Training

CEDEFOP Document

The role of the company in generating skills
The learning effects of work organization
The Netherlands

Authors
Jeroen Onstenk
Eva Voncken
SCO-Kohnstamm Instituut

June 1993

First edition, Thessaloniki 1996

Published by:
CEDEFOP — European Centre for the Development of Vocational Training
Marinou Antipa 12, **GR-57001 Thessaloniki**
Tel. (30-31) 49 01 11; Fax (30-31) 49 01 02
E-mail: info@cedefop.gr

The Centre was established by Regulation (EEC) No 337/75 of the Council of the European Communities, last amended by Council Regulation (EC) No 251/95 of 6 February 1995 and Council Regulation (EC) No 354/95 of 20 February 1995.

Cataloguing data can be found at the end of this publication

Luxembourg: Office for Official Publications of the European Communities, 1996

ISBN 92-827-0374-6

Printed in Belgium

FOREWORD

Numerous continuing vocational training studies at both the national and Community level, especially those carried out by CEDEFOP on continuing training policy in large enterprises, have revealed the expanding role being played by enterprises in the development of human resources. This trend - which some see as heralding the emergence of a new division of responsibilities between those involved in training and production - undoubtedly calls into question their existing relationship and respective activities.

These studies also imply that, when it comes to strategies for developing human resources within enterprises, formally organized continuing training is only one of the options available for generating the "new" skills and competences considered necessary by enterprises. There are now organizational models geared to providing apprenticeship opportunities by exploiting the training impact of work situations, thus enabling a dialectic to be established between "formal apprenticeship" and "informal apprenticeship" (via work organization and cooperation between employees in the production and innovation process).

While they may make converging structural trends apparent, these new organizational models take on different forms and need not necessarily have any general application. The considerable difference between the contexts in which these models emerge means an analysis needs to be conducted of the relationship between an enterprise and its environment if there is to be an understanding of how the organizational models fit into the social context and what the scope and limitations are in a transfer of such models.

The primary objective of the present series of studies being undertaken by CEDEFOP in nine countries[1] is to establish the impact of developments in work organization on the skilling process and, more especially, to pinpoint the links between these developments and opportunities for formal and informal apprenticeships. These studies also enable light to be thrown on the nature of skills and competences which can emerge in the context of new types of organization and allow assumptions to be made about the impact of these developments on training systems.

A twin track analysis is pursued below. At the **macro level**, an attempt is made to "reposition the enterprise in the chain of skill generation" and to provide an interpretation of the mutual links between initial training, continuing training, the labour market and industrial relations. At the **micro level**, the aim - based on enterprise case studies - is to throw light on the various aspects of organizational innovation, developments in skills and the on-the-job apprenticeship process, in particular work-based and work-influenced forms of apprenticeship and how they relate to formal apprenticeships. In each country, enterprises were required to have a "marked and relatively stable level of organizational innovation" to qualify for case study selection.

---

[1] Belgium, Denmark, France, Germany, Italy, the Netherlands, Portugal, Spain, United Kingdom

The present report deals with both these aspects without necessarily looking at all the cases studied. These are the subject of an analysis examining how the macro level interacts with the micro level which is presented in the summary that concludes this report.

Finally, a cross-sectional analysis based on the national studies identifies the converging and diverging developments which emerge in relation to their social context, notes the impact of these developments on the training systems and raises questions in respect of social dialogue and training policy decisions. This analysis is the subject of the summary report on "The role of the enterprise in the generation of skills: the training impact of work organization", published in the CEDEFOP Document series.

Our warm thanks go to those responsible for the studies at the national level and to all the members of the research teams and companies involved in their successful conclusion.

Fernanda Oliveira Reis

Frédérique Rychener

TABLE OF CONTENTS

1 INTRODUCTION

1.1 BACKGROUND TO THE INVESTIGATION

Commissioned by CEDEFOP, the European Centre for the Development of Vocational Training, SCO was responsible for the part of the investigation relating to the Netherlands for the project carried out in the nine EC countries: "*The role of firms in obtaining qualifications: "Training and training effects of the organization of work in undertakings*".

Central to the CEDEFOP investigation is the significance of modern production concepts for obtaining qualifications at national level. It is expected that modern production concepts will lead to higher and different requirements as regards qualifications and skills: social/communications and organizational skills, key qualifications, system insight, broadly applicable occupational skills and transitional skills (Onstenk, 1992b).

In additional, rapid change in technical knowledge and skills may be expected in view of the rapid pace of technological and organizational renewal. Both factors result in skills not being acquired only at school and in initial vocational training, but that learning will also be necessarily in and from the organization of work (learning at the workplace) later in the worker's career. Continuing learning is acquiring a new significance. Workers partake of training with a degree of regularity (whether or not on the job), but must also (be able to) learn from and during the work itself. The broader compass of solutions to problems, a wider and more variable task package and greater attention paid to learning within the organization mean there is a greater need for learning at the workplace. At the same time, new possibilities are being opened up for obtaining qualifications at the workplace. How this takes place and what conditions and obstacles play a part in this has been analysed in detail in this investigation, in which a rich variety of problems and solutions emerge, even though a limited number of firms were investigated.

1.2 DESIGN OF THE INVESTIGATION

The prime issue under investigation is the question of the interaction between the national system for obtaining qualifications (vocational training and adult education) and the development of new production concepts. More specifically, it is a question of the contribution made by firms themselves towards obtaining qualifications and the acquisition of qualifications during a worker's working life in relation to the qualifications acquired in the education system. In this connection, attention has been paid not only to in-house training but also to learning during work, that is to say, the learning effects of the organization of work.

The investigation is in two parts: a macro study and a study of three firms. The macro study describes the Netherlands system for obtaining qualifications. This study concentrates on identifying trends with regard to the principal characteristics and developments in the vocational training system, adult education and lastly the labour market and conditions of employment in the Netherlands.

The second half of the investigation, the "micro study", consists of three case studies of Dutch firms. These case studies aim at analysing the organization of work in relation to vocational training and learning at the workplace within a production department. Although the emphasis is on learning processes on the shop floor, the context determining policy (the firm as a whole) is also described. Information has been collected by means of documentary analysis, interviews with persons concerned (workers, managers, staff representatives, trainers, personnel, etc.) and observation on the shop floor. The firms in question have a new or transformed production concept, coupled with the introduction of new technology and computerization. These are firms which have abandoned a Taylor-type organization (narrow jobs and precisely prescribed working methods). The organization of the work in these firms is characterized by principles such as work organized in groups, fuller jobs (preparation - production - control), flexible specialization, integration of maintenance and production, integration of quality control into production tasks, and integration of front office and back office. The new forms of organization have far-reaching implications for the qualifications required, training policy and the qualifying effect of work.

In the final chapter, the findings of the macro and micro studies (the cases) are related to each other. The principal point of interest here is the reciprocal relationship between the micro study and the macro study. More specifically, answers were sought to the following questions:

What shifts are discernible in the system for obtaining qualifications, the changing role of firms and in the system of in-house training and the reciprocal relationship with vocational education?
What consequences can be drawn from the studies of firms with regard to the changes in the system of vocational training and adult education?

In the introductory chapter two major subjects are investigated: the policy of firms with regard to obtaining qualifications and the question as to when and where qualifications must be obtained. The final paragraph provides a guide to the report.

1.3 POLICY OF FIRMS WITH REGARD TO OBTAINING QUALIFICATIONS

Firms have a need for qualified staff. In principle, there are three conceivable strategies for meeting that need:

- substitution/technology: replacement of qualified staff by automation or sharing the work. Conversely, technological development combined with the chosen organizational choice also plays a part in increasing qualification requirements.
- recruitment: recruitment of qualified staff (school leavers or workers from other firms)
- training: education and training of qualified staff (unemployed persons and existing staff of the firm).

In practice, a combination of strategies is frequently employed with a shift of emphasis being observed over time towards more attention being given to training. In the 1960s, the substitution/technology option, alongside the recruitment option, was favoured by many leading Dutch firms. The limits to this have since become clear, whilst in addition there has been greater awareness of the value of qualified staff as "human resources". The tendency now is to opt for a mix of recruitment of better trained staff and training. Medium-sized and small firms have - at any rate until recently - tended to "opt" for the substitution or recruitment strategies rather than for the training strategy. Only when that has proved unsuccessful (for example, owing to the lack of suitable supply), is a switch made to training. This need is becoming increasingly apparent.

It is hard to speak of a dominant model for obtaining qualifications in the Netherlands. There are too many differences between - and also within - sectors. However, a characteristic feature is that a choice can be made both by firms and trainees. As a result of the existence of two different initial training routes, namely via schools (intermediate vocational education) and via firms (apprenticeship system), the firm can opt for a greater or lesser degree of recruitment at the approprate level or for a greater or less degree of in-house training. Many sectors are characterized by a broad spread as regards preliminary training for workers in which the qualifications required are obtained through a broad spectrum of in-house and sectoral training, supplemented by specific institutions. This applies, for example, to a marked extent in the processing industry (Frietman and others, 1992.)

As a general trend it can be observed that firms tend more to choose new workers with a more vocationally-oriented, but also a higher, level of training. This strategy comes up against problems where there is insufficient supply on the labour market. This is true in particular of persons with intermediate training in technical jobs. As a result, firms are compelled either to leave vacancies unfilled or to consider alternatives, for instance accepting persons with primary or different training for further internal training. The structural application of such a "cascade model" (Hofman and others, 1991) is widely advocated above all on account of labour-market considerations, but implemented by few firms in practice. In so far as it occurs, it does so mainly in larger firms.

1.4 LEARNING AT SCHOOL AND DURING WORKING LIFE

The discussion about changes in the system for obtaining qualifications (vocational education, adult education and vocational training) is partly governed also in the Netherlands by the question as to which qualifications can best be obtained. The central question here is the relationship between initial and post-initial training, between education for young people and adult education, between education and vocational training. The combination of an increasing and ever more widespread requirement for qualifications, together with increasing requirements in respect of the education system in the light of societal and cultural functioning leads to a steady rise in the time during one's lifetime which is devoted to education and training. Until the mid-1970s this took the form of an extension of initial training (1975 was the last time that compulsory education was extended). Gradually the need for life-long learning emerged more and more. Thus, since the early 1980s, and above all in the last few years, vocational training has increased considerably in extent (Mulder and

others, 1988; Brandsma and Peters, in preparation). This has meant that initial training is increasingly less final education. As far as general education is concerned, the need for vocationally oriented education after that form of education is being expressed more and more often. This is reflected, for instance, in the description of the expression "minimum starting qualification". All those who leave education without a qualification at the primary apprenticeship level are regarded as "premature school-leavers" on account of their adverse prospects on the labour market. As far as vocational education is concerned, retraining, further training and additional training is increasingly frequently regarded as necessary.

Not only the time, but also the place at which qualification for an occupation has to take place, plays an important role. This question relates to a division between the public authorities and industry, between school and the firm. There seems to be a pincer movement involved here. On the one hand, an increasing large proportion of the provision of qualifications is organized externally. This may take various forms: initial training, in-house training provided externally, an integrated (dual) system. On the other hand, industry wishes to maintain its hold over the provision of qualifications, for example through consultation structures. The precise relationship between qualifications provided by the education system and qualifications provided by industry is, in addition, partly determined by characteristics of the occupation, the sector and the firms. Thus, there is a clear distinction between large and small firms as regards the extent to which internal training possibilities can be offered. Also the occupationally specific nature of equipment, the product or working methods plays an important role.

The macro study provides a picture of the context within which training and obtaining qualifications take place through informal learning in firms. The training policy of Dutch firms is shaped partly by developments in the environment. In particular, vocational education and adult education, on the one hand, and changing employment relationships, on the other, are of importance. Vocational education and conditions on the labour market have an effect above all on recruitment strategy. Adult education and changes in company policy relate primarily to training strategy. In the internal labour market, recruitment and training are related to one another. In learning at the workplace, technical/organizational and training strategies are combined.

1.5 GUIDE

Chapters 2, 3, 4 and 5 set forth the findings of the macro study. Chapter 2 sketches a picture of the vocational training system in the Netherlands. Chapiter 3 tackles adult education. Developments on the labour market are central to Chapter 4. In Chapter 5 we look into the scope and characteristics of new production concepts in the Netherlands. In so doing we place in context the cases which are discussed in Chapters 6 and 7. The key questions in Chapter 6 are new forms of organization and their results, whilst Chapter 7 discusses training policy and the effect of work itself in providing qualifications. Chapter 8, the summarizing chapter, sets out the conclusions of the investigation together with a discussion of the interplay between the macro and the micro studies.

SECTION 1

2 VOCATIONAL EDUCATION IN THE NETHERLANDS

The Dutch system for obtaining qualifications consists of two main components: vocational education and adult education. In this section we shall discuss secondary vocational education. In the next section we shall explore the system for providing adult education and in-house training. Both components are at present in very much in a state of flux, with efforts being made both within vocational education and adult education and between those two sectors to achieve greater integration and a clearer structure. There is also a more marked drive towards greater involvement of firms. This is not only a question of controlling costs, but also of being better able to take advantage of quantitative and qualitative changes in the Dutch economy.

In section 2.1 we shall discuss the position of vocational training within the education system. Section 2.2 deals with the structure and scope of secondary vocational training, whilst section 2.3 describes the policy themes for the 1990s.

2.1 DEVELOPMENTS IN THE POSITION OF VOCATIONAL EDUCATION

The Netherlands has a complicated education system in which strong stress has been traditionally placed on general education. After basic education, which lasts for eight years and is attended by everyone, the first phase of further education begins. This consists of four years of general education (avo) or 4 years of primary vocational education (lbo). Compulsory education totals 10 years (from 6 to 16 years of age). After that there is partial compulsory education of one (young persons with an apprenticeship contract under the apprenticeship system) or two days a week for young persons who have left full-time day education. The second phase of further education covers in addition to the last years of havo/vwo the two to four years of intermediate vocational education (mbo). Havo and mbo provide access to higher vocational education (hbo). After vwo, access can be obtained to academic education.

2.1.1 Attendance of vocational education

Owing to demographic changes, the number of young persons in further education has been declining since the late 1970s. This is expected to stabilize after 1993. At the same time, the length of time young people spend in education has increased sharply. Above all, there has been a catching up by girls. A number of shifts have occurred in this context. More and more young persons are carrying out higher training; in other words, the general level of training is rising (Quarterly report on the labour market, 1991). With the rise in the general level of training, the position of those who do not succeed in obtaining a first-phase diploma is becoming harder.

Over the last ten years, vocational education has been accounting for an increasingly more important position within education as a whole, both in quantitative terms (see table 2.1) and in terms of policy. There are three levels of vocational education in the Netherlands: primary, intermediate and higher.

Since 1980 attendance figures for primary vocational education have fallen off sharply. This is not due only to declining numbers of students in further education, but also to the fact that students more often opt for avo training instead of lbo training. In connection with the introduction of the common curriculum in the first three years of further education (basic training), the name lbo has been changed to vbo (preparatory vocational education). This change of name emphasizes that lbo is not regarded as final training (minimum necessary starting qualification).

Table 2.1 **Number of participants in full-time education x 1000 (1980-1991)**

	1980/81	1985/86	1990/91
basic education (further)	1743	1469	1443
special education	92	100	109
mavo/havo/vwo	824	804	684
lbo	403	359	223
Dt-lbo		14	9
mbo	168	276	289
Dt-mbo / apprenticeship system		189	201
hbo	132	149	189
w.o.	149	159	166

Source: CBS, De Nederlandse jeugd en haar onderwijs, 1980/81; 1985/86; 1990/1991.

In contrast, vocational education at secondary level (intermediate vocational education and apprenticeship system) is expanding very strongly. The number of school leavers with an avo diploma has declined while there has been a greater flow into vocational education. Intermediate vocational education has expanded spectacularly from 114 000 students in 1975 to almost 300 000 in 1991. The great significance of vocational training emerges even more sharply if participation in part-time vocational training, including apprenticeships, is considered. In 1990 well over 200 000 additional students were in part-time vocational training. The sharp increase in mbo, in particular between 1980 and 1985, is partly attributable to the emergence or remoulding of vocational training courses for administrative and caring jobs. This also explains the increase in the number of girls in mbo. Most students in these training courses come, not from lbo/vbo, but from mavo or havo. The influx to mavo is also increasing in the case of technical training.

Attendance of higher vocational education (hbo) also increased sharply between 1980 and 1991. Both students from mbo and students from havo and vwo took part in this increase.

To sum up, a new model appears to be emerging as regards attendance of education. On average, students are taking part in education longer and in two stages. First, general education is attended until 16 to 18 years of age, which is followed by a form of (intermediate or higher) vocational education (Dronkers, 1992). As a result of the growth in the number of participants in vocational training courses and the decline in attendance of vocational education at the primary level (primary vocational education), the level of training of the working population has not only risen, but undergone a change in its character. People are staying at school longer and subsequently come on to the labour market, not with a general education, but having undergone vocational training (see Chapter 4).

2.1.2 Growth of vocational education: causes and effects

The growth of vocational education and the rising level of training are attributable to a number of causes some of which conflict with each other, others of which reinforce each other.

In the first place, externalization of vocational training is involved. Training which, until recently, took place in the firm (largely on the job) is now being provided in a vocational training course. This is happening in various sectors. Thus, the replacement of lbo by mbo in many technical occupations (for instance, with the introduction of CNC equipment) may be regarded as externalization. In-service training tied to a hospital for nurses is being replaced by intermediate vocational training and training under the apprenticeship system. Not only is a rise in the number of jobs in administration and the caring professions involved (Kloosterman and Elfring, 1991). More and more specific mbo training courses for these jobs are emerging where previously generally educated school leavers were trained in-house. The banks provide a very clear example of this. They have been actively involved in setting up specific banking training in economic/administrative vocational education at the secondary level (both apprenticeships and mbo), whereas traditionally banks have trained school leavers (also from primary avo training courses) internally.

In addition, there is an independent process of longer attendance of education which is threatening to result in inflation of diplomas and looming under-utilization (Dronkers, 1992).

Lastly, in the case of a number of jobs, an actual increase is taking place in the qualifications required, in connection with technological renewal, but also with higher organizational and commercial requirements (flexibility, market orientation, quality control).

The relative importance of those trends cannot be clearly determined. There are large differences between sectors and displacements in time. There appears to be a degree of consensus to the effect that the level of training has outpaced the level of jobs (under-utilization), but that, under the influence of shrinking supply and increasing qualifications requirements in a number of sectors and for a growing number of jobs, it is in fact possible to speak of "upgrading". As far as technical occupations are concerned, the improving economic situation and the (moreover, disputed) increase in required qualifications, coupled with the decline in the supply of apprentices, is resulting in (anticipated) shortfalls of qualified workers. As a result, numerous initiatives and actions have been undertaken in

order to draw students (including non-traditional groups such as girls or immigrants) into technical education. This seems to be most successful in sectors where there is a great need for a close connection between the training and firms (Hövels and others, 1990; De Bruijn and Nieuwenhuis, 1992).

2.2 SCHOOLS AND THE INTEGRATED APPROACH WITHIN SECONDARY VOCATIONAL EDUCATION

After setting vocational education in its general context within the Dutch education system, we shall explore in more detail vocational education at the secondary level. This consists of two "streams": intermediate vocational education (schools, day-time education) and the apprenticeship system (integrated). Vocational training in day-time education and the apprenticeship system have developed as two independent forms of vocational education. They are (still) governed by different laws. The restructuring of secondary vocational education (see 2.3) is intended to unify the two streams within one qualification structure.

Four clusters can be distinguished within vocational education: agricultural, technical, administrative and services/health care. Since agricultural education in the Netherlands is differently organized and is more or less separate from the rest of the education system, we will not consider it further.

Intermediate vocational education (mbo) is attended after the first phase of further education, and lasts for three or four years. Increasing attendance of mbo is largely attributable to the expansion in vocational training for administrative, services and caring jobs. As a result, the number of girls taking mbo has increased. Technical training has expanded too, but more slowly. Adults have the possibility of taking an mbo training course on a part-time basis.

Table 2.2 Number of students in 1990/91 per sector, short and long mbo training (x 1000)

	long training		short training	
	men	*women*	*men*	*women*
technicaL	72.3	10.6	7.7	0.4
agriculture	11.7	3.0	0.8	0.5
economy	47.1	45.3	5.1	7.9
careers	6.3	53.9	0.3	2.1

Short intermediate vocational education (kmbo), introduced in 1979, emerged from a merger/integration of part-time training under the apprenticeship system and day release. It is intended for young persons of 16 to 18 years of age who do not satisfy the entry

requirements for mbo, apprenticeship/bbo or have not yet been able to make a choice. The programme covers in particular training, orientation and link-up courses and vocational training courses at a level equivalent to that of the primary apprenticeship. There is a full-time and a part-time variant of kmbo, the latter being referred to in the new qualifications structure as short training.

Alongside school vocational education, there is an alternative form of vocational training, the integrated **apprenticeship system**. Training under the integrated apprenticeship system consists of a practical component (three or four days a week on the job and at a training place/workplace) and a school component: one or two days at a day-release school (BBO). It is possible to enter the apprenticeship system after the first phase of further education, but the training may also be followed by working or unemployed adults. Within the apprenticeship system a distinction can be drawn between primary, further and (to a limited extent) tertiary training. Access to primary training is given by a lbo or mavo diploma or (in the case of adults) by link-up programmes.

The programme is laid down in accordance with the Law on the Apprenticeship System (1981). National bodies (32 in all), on which, unlike in the case of school-based vocational training, the social partners for each branch of industry are represented, are responsible for the training and the examinations.

Since 1984 (report of the Wagner Committee), an explicit policy has been conducted by the public authorities and social partners (nationally and at branch level) in order to strengthen the apprenticeship system. This policy appears to have been successful: the apprenticeship system expanded strongly in the 1980s in the case of both primary and further training. This is true not only of technical occupations, where apprenticeship traditionally had its centre of gravity, but also of administrative, services and caring occupations. Increasing numbers of women are training under the apprenticeship system. The number of apprentices over 20 years of age is also rising sharply. In spite of the "drying up" of the traditional source of recruits, lbo, an increase has been observed up to 1992 both in the numbers taking part in primary training and in those taking part in further training.

Table 2.3 Number of persons taking part in the apprenticeship system x 1000 (1980-1990)

	primary	further	total
1980	58.4	15.9	79.3
1985	56.0	17.9	73.9
1990	97.0	52.0	149

Source: CORO 1991

The flow of apprentices still comes for the most part from primary vocational education (and within lto), yet the decline recorded in recent years has not continued. The percentage of apprentices with havo or mbo training is declining in primary training and increasing in further training, above all in administrative and caring jobs.

Comparison with MBO apprenticeship system

Overall, the levels in Dutch vocational training reflect the division into job levels: production, middle management and senior management. As far as trained production jobs are concerned, what is required is usually the level of primary apprenticeship (junior craftsman). It might be said that the level of primary apprenticeship is increasingly the lowest level of craftsman in industry, whereas previously that place was taken by the lbo. This is also reflected in the drive for starting qualifications (see 2.3.3).

The mbo is taken by approximately three times as many apprentices as the (integrated) apprenticeship (table 2.4). This is because there are many more mbo apprentices in the administrative, services and caring sectors. Within the apprenticeship system in those sectors, the proportion accounted for by further training is relatively high. Since further training corresponds, in terms of its level, to the mbo, to a large extent there are alternative routes for comparable jobs. Intermediate vocational training for administrative and caring occupations had in general a lower status than it has for technical occupations. To a much larger extent, these are production jobs for which the apprenticeship system also provides training.

Table 2.4 **Participation in the apprenticeship system (apprenticeship contracts) and MBO (1986, 1990) (x 1000)**

	APPRENTICESHIP SYSTEM/1986			MBO/1986		
	Primary training men and women	*Further training men and women*	*Tot.*	*men*	*women*	*Tot*
of which technical	53	12	65	70	8	78
serv./ins	9	5	14	6	66	72
econ./admin	8	4	12	23	27	50
Other mbo				51	25	76
Total	74	23	97	150	126	276

	APPRENTICESHIP SYSTEM/1990					MBO/1990		
	Primary training		Further training					
	men	*women*	*men*	*women*	*Tot.*	*men*	*women*	*Tot.*
of which technical	67	7	30	1	105	71	8	79
serv./ins	1	11	1	10	23	8	67	75
econ./admin	4	7	5	5	21	28	32	60
Other mbo						53	28	81
Total	72	25	36	16	149	160	136	296

Source: CORO, 1991; CBS, 1992.

In the technical sector, the proportion accounted for by the apprenticeship system is much greater than that accounted for by mbo. Here to some extent the traditional model is still in existence, under which training to become a junior craftsman (primary apprenticeship system) is intended for production jobs, whilst the mbo is aimed at middle management, design and maintenance jobs. For that matter, many persons who have undergone mbo perform production work, albeit in more complex jobs (maintenance, for example) or at the beginning of their careers (Hövels, 1987; De Grip and others, 1990).

The restructuring that has taken place of secondary vocational education and the development of the integral qualifications structure capitalizes on that trend. Alongside regular mts training, which is to be called "long middle-management training", so-called "intermediate training" has been developed for mbo students (in the sectors of toolmaking, electrical engineering, construction), which will consist of a combination of two years of mbo, followed by one or two years further training under the apprenticeship system. In this way, apprentices in mts will be divided into two streams. A major aim is to counter dropping out from mbo. There are grounds for fearing that in practice the division between more "theoretical" and more "practical" students will sometimes be interpreted as a distinction between "better" and "worse" students.

2.3 RESTRUCTURING OF (SECONDARY) VOCATIONAL EDUCATION

Whilst in the 1970s policy efforts directed at (vocational) education sought primarily to combat unequal opportunities (for girls and immigrants) and (to a lesser extent) aimed at improving quality, policy since 1980 has had a increasing (labour) market orientation. The increased participation in vocational education squares with vocationalism as the characteristic development in Dutch education. A distinction has to be made between various vocation-oriented trends (Moerkamp and others, 1992):

- Emphasis on continuing education: general education (avo) is becoming less and less final education; (re)qualification during one's career is becoming necessary.
- Increasing scope for obtaining vocational qualifications within the education system and shift towards greater participation in vocational education of the second and third levels.
- More orientation towards occupational content within "general" subjects in vocational education and in avo education.
- Attention is paid to learning places other than the school (learning in a firm or at a simulated workplace) and increasing importance is being given to learning during one's career. In the Netherlands, there has for a long time been a tradition that schools should be responsible for the general training and theoretical specialist training of students, but little is done about vocational qualifications. Training courses are directed towards diplomas not towards the acquisition of skills. A change is taking place in this respect in response to the call for specialists and to demand for changing qualifications.

Discussions about these developments were tightly directed by advisory committees led by top industrialists (Wagner Committee in 1983, Rauwenhoff Committee in 1990). Those committees resulted in policy developments which aimed at the expansion and restructuring of (vocational) education and at providing it with a greater measure of flexibility, integration and decentralization.

2.3.1 Sectoral training and renewal of intermediate vocational education

The increased concern for cooperation and coordination between vocational education and industry is expressed *inter alia* in various policy rules of the public authorities designed to bridge the "gulf" between vocational education and industry. Cooperation between schools and firms is receiving new impetus. Within mbo the SVM operation (sectoral training and modernization of intermediate vocational education) is taking place whereby mbo schools are merging with each other and with other forms of vocational education (kmbo/bbo) and will provide a range of short and longer-duration vocational training courses. Industry is also obtaining a greater role in the development of training profiles and final attainment levels for mbo training courses.

Dutch vocational education is characterized by a combination of flexibility and rigidity, which is strongly connected with the independent position of education, which is protected by law. It appears easier to make a new training course available or even to develop a completely new type of school (such as the kmbo) in response to new technologies or developments on the labour market, than it is to discontinue or radically revamp an existing form of training. In particular in established types of schools (such as the mbo) it is difficult to get innovations such as participation training or modular training off the ground or innovations are confined to new training courses. A change appears to be coming about in this situation, partly as a result of the present radical structural reform. Thus, now even fundamental changes are being proposed (such as the introduction of certificate units and changes in traineeships) for long-established mbo technical training courses.

Central to the modernization set in train in the early 1980s is the stimulation and restructuring of vocational education alongside the "general" government aims of making savings, decentralization and reducing the problems in making connections between (vocational) education and work. This is intended to be achieved above all by increasing industry's involvement in vocational training. Advisory committees with a strong representation from industry are playing a major role in this. The recommendations of a committee chaired by Wagner, who came from Shell, resulted in 1984 in agreements between the public authorities and the social partners on making apprenticeship into an integrated system and on increasing the connection between the labour market and mbo (Van Dijk and others, 1987). Through the Bedrijstaksgewijs Overleg Onderwijs Bedrijfsleven (BOOB) branches of industry are involved in the development of vocational (training) profiles for the mbo (Note 1986; Moerkamp and Onstenk, 1991). Contacts between schools and firms have been stepped up (De Bruijn and Voncken, 1990).

Involvement of branches of industrial was novel for a major part of mbo. Previously, final attainment levels were determined by the minister, whilst curricula were drawn up by curriculum committees, on which education and subject specialists were chiefly represented. Industry had no direct representation or responsibility, although there were for technical training courses "soundingboard groups" on which branches of industry were represented. Also, sometimes use was made of surveys of former students. The schools themselves were responsible for carrying these out.

Education and industry (employers and workers) are represented jointly on the BOOBs, which were set up in 1987. It is interesting that it was not decided to classify them according to the main sectors of mbo (technology, administration, care/services and agriculture), but according to branches of industry, although on a less detailed basis than under the apprenticeship system. The social partners provide the job profiles, which the BOOP converts into vocational training profiles and final attainment levels. In most BOOBs this has been reasonably successful following a hesitant start, although in many cases not much more happened than the adjustment of existing final attainment levels. In practice, the BOOB also often drew up the job profiles. To a lesser extent, a start has been made with actual implementation in curricula.

The apprenticeship system has had for a long time national bodies which are responsible for the content of training and for examining and assuring the quality of the practical component. The national bodies are in many cases independent foundations which are controlled on a tripartite basis by employers, workers and (a minimum representation of) the education system. Industry has a much greater influence there, whilst in addition the role of employers is explicitly specified. Otherwise, with the exception of the central level, the influence of trade and professional organizations on vocational education is minimal (Van Dijk and other, 1987). Involvement with training courses is formal or directed towards accessibility in connection with combating unemployment, and not substantive. Training is regarded as "their property", as appears for example from the increasing number of collective labour agreements embodying agreements to reserve part of aggregate wages and salaries for extending training under the apprenticeship system (De Vries and Hövels, 1991). Moreover, concern is regularly expressed about the quality of the practical component of training (Industriebond FNV, 1991; Cox and others 1993).

Generally speaking the apprenticeship system takes account somewhat better of changes in industrial practice or the labour market, partly because of the greater role played by the social partners in the national bodies. But the formal powers of industry on national bodies do not mean that an active role has always been played in practice as regards training. Involvement plainly is sensitive to the economic situation. At times of low economic activity, training is often neglected, as a result of which places for trainees decline and the content of training lags behind sectoral changes. Only where there are mounting problems on the labour market, do firms pay attention again to education. In that case, branches of industry appear to be able to react effectively where there is a close connection between training and industry (De Bruijn and Nieuwenhuis, 1992).

In 1992 a committee chaired by Rauwenhoff from Philips delivered an opinion (Opinion on the Labour Market, 1990). This resulted in a covenant between the public authorities and the social partners: "Working together on vocational education" (Uitleg, 192). The crux of this is a combination of improving links and decentralization. The covenant contains agreements on the distribution of responsibilities for vocational education, starting qualifications, articulating inquiries and concern for quality, integrated courses, co-authorship and setting up national bodies for vocational education. The most important aim of the reform is better integration of the various learning paths into a coherent structure for acquiring qualifications consisting of relatively short and relatively long training courses. To this end, efforts are being directed towards scaling up by merging mbo schools, to an increasing extent together also with other forms of vocational education (Kmbo/bbo). An attempt is being made to involve industry more in school vocational education both by setting up national bodies for vocational education and by putting training on an integrated basis. In this way, the public authorities intend to give industry co-responsibility for both the content and funding of initial vocational training.

Consultation about training profiles and final attainment levels is to take place in new national bodies, which are to take the chief decisions within the new qualifications structure. In the memorandum issued in late 1991 and entitled "Towards national bodies for vocational education" (MOW, 1991), it was proposed that the BOOBs and the national bodies for the apprenticeship system should be merged to form new national bodies with responsibility for the whole system of qualifications at secondary level. The model afforded by the apprenticeship system served as the starting point. Initial reactions to the memorandum suggest that what is necessary for this to happen must still take place. Thus, it is feared on the part of the mbo that there will be a "surprise attack" by industry and a threat to its general educational function and permeability. The network of hard-won collaboration between the mbo educational sphere and branches of industry (in the BOOBs) will in many cases have to be constructed afresh.

As far as the apprenticeship system is concerned, the proposed sectoral structure is a major sticking point. Whilst there is now a close relationship between branches of industry and apprenticeship systems, in particular as regards technical occupations, in the new-style national bodies, there will be a drive for a sectoral structure in which the various technical training courses will be grouped. The aim is to achieve a reduction from the present 30 plus national bodies for apprenticeships (and 28 BOOBs) to a maximum of 12 new-style national bodies. Previous experience with scaling up with regard to apprenticeships (Van Dijk and

others, 1987) show that the direct involvement of firms with "their training" can be threatened where the training does not correspond to developments in occupational practices themselves.

Also the important role played by recognized, independent training in professionalizing and providing a profile for an occupational area or a branch (Be Bruyn and Nieuwenhuis, 1992) seems to have recently been underestimated in the plans. It is characteristic of the expansion of vocational training that new "own" training schemes emerge (recent examples are in banking, tourism, process technology and logistics) whereby the provision of a profile for an occupation or branch is shaped in part by separate training (as a supplement to or as a replacement for former internal forms of training). The restructuring seems to be at odds in this respect, without analysing this in terms of its substance.

2.3.2 Integrated courses

Although the actual debate is concerned mainly with administrative and financial issues, the introduction of integrated vocational training proposed by the government partly seeks to improve the transition from vocational training to employment both quantitatively and qualitatively. This entails, not only a extension of practical components, but also of possible "training places".

Until now, the debate has predominantly been of a technocratic nature (Reuling 1991) and has concentrated on manageability, centralization and increasing the financial and administrative responsibility of industry. Alongside national bodies and the scaling up of training, integrated vocational training is regarded as the most important instrument. Integration (the extension of the practical component of mbo) was initially presented primarily as an organizational measure designed to improve transition from vocational training to employment both quantitatively and qualitatively. Pedagogical and didactic considerations have recently emerged (Reuling, 1991; Moerkamp and others, 1992). The covenant, too, does not embody any agreements as to the precise form in which integrated training is to be implemented (such as the ratio between time at school and time at the workplace), but assumes that that will be dealt with at the level of the branch of industry (Uitleg, 1992). The social partners themselves may determine whether integrated training is to be applied and how many training places/jobs there will be. It is left to the individual schools and firms actually to effectuate the agreements. It is possible to choose from a variety of possibilities as to how to give shape to the integrated approach. Probably integrated forms of training will have to co-exist with full-time training and yield equivalent final attainment levels. The firm is responsible for the practical component, whilst advice and quality assurance is seen to by the training body. As far as mbo is concerned, this would constitute a sharp change by comparison with the present traineeship, where the school itself supervises quality (MOW, 1991).

The implementation of these agreements will also entail problems. It is unclear to what extent firms are actually prepared and in a position to make available so many training places/posts and to supervise (or have supervised) their quality. What experience exists is not conducive to optimism. In 1992 surveys were carried out into this both at the level of

branches of industry and among individual firms. In any case, in view of the uncertainty with regard what is being set up, there is a question as to how far solid data are available.

The expansion of apprenticeships in the 1980s also entailed a change in the character of "training places". Precisely as in the case of Germany, a multitude of forms arose ranging from individual training establishments to common training activities (Frietman, 1990). Probably integrated training will (be bound to) take shape partly through the extension of such common training activities. It is typical that authority over the practical component rests in this instance not with the individual firms, but with a group of firms, a regional branch of industry or a foundation. This affords better guarantees as regards quality assurance and uniformity throughout the country. It also permits of better sensitivity to the economic situation. But precisely those forms require a new relationship between training and the branch of industry, if at least the desired advantages of links and flexible transition are to be secured.

Equivalence of part-time and integrated variants will also pose problems. A formal guarantee is not necessary in every case, as witness the example of full-time Kmbo. Formal equality with apprenticeship has not invariably translated into equality on the labour market. In the case of full-time mbo, which in many sectors has a higher status than integrated training precisely because of its higher degree of theoretical knowledge, the problem arises as to how integrated courses can be designed in such a way that the same level is in fact guaranteed. Industry is now putting large question marks over the possibility of putting mbo training on an integrated basis (quite apart from its readiness to assume responsibility for it).

The planned policy assumes the existence of an integrated national qualifications structure. At the same time, schools are being given greater independence vis-a-vis the Ministry of Education, thereby propagating a closer connection with regional industry. This will create an area of tension between national standards and final levels of attainment, on the one hand, and decentralized responsibility, interpretation and quality assurance on the other. In the case of apprenticeships, the national body (and therefore the social partners themselves) have been traditionally responsible for assuring the quality of the training, the practical component and examinations. This appears to raise a number of problems. In the case of mbo (which is much larger in extent) such a structure still has to be completely constructed, whilst at the same time the individual schools (and the industrial network) needs to acquire more power and independence. It is not yet absolutely sure whether those two requirements are always even readily reconciled with each other.

2.3.3 A minimum starting qualification for everyone

The growing adaptation of education to suit the labour market is reflected in the emphasis put on the so-called minimum starting qualification in policy relating to vocational and adult education, as expressed in the Rauwenhoff Covenant (Uitleg, 1992) and in the "Blijven Leren" (continuing to learn) memorandum (MOW, 1993). In the 1980s, the paradoxical situation arose in which there was both fairly extensive unemployment and an existing and anticipated shortage of skilled people. The Rauwenhoff committee therefore introduced the expression "minimum starting qualification". The government did not take over the idea that obtaining

such a vocational qualification should be obligatory. The drive for a starting qualification for all has since then taken on more form and more of a basis through various memorandums and proposals.

The aim of the starting qualification is to enable as many school leavers as possible to come on to the labour market with a qualification. As a result of demographic, organizational and technological developments, the concern for adequately supplying industry's needs in terms of qualifications and staff is increasing. The growing need for skilled people at the intermediate level can also be inferred from the stronger market position of persons who have undergone mbo. With the increasing importance of vocational education, the issue of drop-outs from mbo (approximately 38%) and from the apprenticeship system (about 45%) is becoming more important. This means that more attention is being paid, not only to the quantity of training, but also to its quality and yield.

An important aim of the coherent qualifications structure which is being striven for is that of guaranteeing for all students at least a "minimum starting qualification" (at the primary apprenticeship level). Agreements on starting qualifications have been concluded between the social partners and the public authorities, which were elaborated on further in 1993.

A primary starting qualification means vocational training of the final level of primary apprenticeship, a short mbo qualification or two years of intermediate vocational education successfully completed. Completed havo/vwo training also counts as a primary starting qualification in view of the favourable prospects which it affords on the labour market. Such a qualification forms the basis for profitable participation in adult education. If as many young people as possible succeed in obtaining a starting qualification, this will mean for the community better employment prospects and less inactivity. The avenue by which the starting qualification may be obtained does not have to be the traditional educational course in full-time day education.

A distinction is drawn between young people up to the age of 18 and adults over the age of 18. At the same time, there is naturally a strong link between "first chance" and "second chance" education: education for young people and adult education. Starting from the principle of equal opportunities and full participation in society, the starting point must be that of laying a solid foundation in young people's education: the "first chance". Only if that is so, can acquired knowledge be build up in later life.

In earlier phases, consensus was achieved as to the need for starting qualifications for young people. As a result, age (as in present compulsory education) and the educational avenue are in fact subordinated to the outcome: attainment of the starting qualification. For young people incapable of attaining a starting qualification or capable of doing so only if they are given specific guidance, there will in future be more specially tailored educational routes for which recognizable qualifications for individual branches of industry will be formulated, either broadly at a lower level or on a more job-specific basis. For young people under the age of 18 who have not yet obtained a primary starting qualification, work is to be coupled as much as possible with an apprenticeship contract in order to counter the attraction of the labour market for young people (premature school-leavers). It must be plain to all parties

that the route has not yet been completed so long as employers and workers still have to put an effort into the attainment of a starting qualification.

There is another approach for adults: employed persons who have no starting qualification must still have the opportunity of obtaining one. Responsibility for this rests with industry. Unemployed persons must be obliged more compellingly to make themselves available for the labour market, for example through appropriate training.

2.4 SUMMARY

The Netherlands has a complicated education system. Traditionally, great stress has been placed on general education. Over the last ten years, however, vocational education has become increasingly important: the number of students is rising sharply and the number of policy initiatives is growing. Dutch secondary vocational education has traditionally been characterized by the existence of two streams, with an integrated system (apprenticeship system) existing alongside a system of schools (mbo and kmbo).

For a number of years, a radical restructuring of Dutch vocational training has been taking place with the aim of increasing the coherence and flexibility of the system of qualifications. This drive takes shape through the more extensive integration of various educational routes in sectoral schools. Those schools are to offer both shorter and longer training in schools and under variants of integrated training. In this connection, an attempt is being made to involve industry more in (school provided) vocational education, both as regards the development of training profiles and as regards further integration. The restructuring is not confined to the initial level (apprenticeship system and mbo), but also extends to adult education and in-house training. Both through contract activities and through regular participation, workers are being trained to an increasing extent by schools of vocational education and through apprenticeship schemes.

A major role is played in this context by the drive for a starting qualification, both for students and persons in employment. The fact that a level is indicated in the form of the qualification standard laid down, rather than an age (limit) or the duration of the training, makes the situation of the Netherlands a unique one.

3 ADULT EDUCATION AND IN-HOUSE TRAINING

Alongside vocational education, adult education accounts for a major part of the Dutch system for obtaining qualifications. Education for employed persons also counts as such. The bulk of it consists of in-house training which is attended in the firm or outside it. The first section discusses the structure of adult education. In-house training is central to the second section. The third section deals with training in relation to conditions of employment.

3.1 ADULT EDUCATION: STRUCTURE, POLICY AND PARTICIPATION

Adult education encompasses various forms of education and training intended for persons aged 18 or over. The aim of adult education is to offer education and training which is calculated to promote personal development and functioning in society. The education may be designed to develop skills in various areas consonant with the adults' needs and potential, on the one hand, and the requirements of society, on the other.

The Dutch system of adult education can be subdivided into four segments. Two of them are funded mainly by the public authorities, two by firms and/or participants.

The first segment, which is (partly) financed by the public authorities consists of a number of facilities which fall within the remit of the Ministry of Education. These relate to:

- basic education (for example, language and mathematics courses), which is aimed at personal development and functioning in society;
- further general adult education (vavo), which enables adults to obtain an avo diploma;
- day release courses;
- vocational training consisting of short courses, principally mbo and apprenticeship schemes;
- the open university (OU).

The second segment comes under the responsibility of Arbeidsvoorziening (ARBO), which is part of the Ministry of Social Affairs and Employment. It consists of vocational education consisting of short courses in the form of a variety of possibilities for different target groups and is primarily intended to provide training for job-seekers. The most important training institutions are the Centra voor Beroepsoriëntatie en Beroepsoefening (Centres for Occupational Guidance and Occupational Practice - CBBs) and the Centra Vakopleiding (Centres for Vocational Training).

The private part of adult education consists of private institutions for correspondence and evening courses and of internal and external training courses for company staff which are provided by firms. In this study, we shall be concentrating on the last-mentioned segment: in-house training (see section 3.2).

Participation in adult education

A major difficulty in charting the situation in the Netherlands is the lack of documentation on adult education (Brandsma and Peters, in preparation). Most of the data relate to the education institutions: number of participants, funding, available courses, etc. In addition, a number of surveys have been carried out in which participation in training by the (working) population was considered.

Table 3.1 Participation in adult education, 1988 (in figures)

	No of participations 1988
basic education	78 313
further general adult education (VAVO)	90 775
higher education	88 650
vocational training	180 553
day release courses	96 427
private (mainly correspondence) courses	368 968
in-house training	761 800 (in 1986)
teleac (television academy)	113 911

(Source: Brandsma and Peters, in preparation)

It appears from more recent figures (CBS, 1993) that the field of vocational training is rapidly expanding. The number of participations in 1991 rose to 1 100 000, an increase of 34% over 1986.

From the point of view of firms, a distinction can be made between internal and external training markets (Brandsma and Peters, 1991). The internal training market relates to training opportunities offered by employers (which can be provided in the firm or outside it). The external training market relates to training facilities financed out of public funds. From firms' point of view, the external training market as defined here is relevant primarily for the recruitment and engagement of new staff (for instance, through a subsidized training place/job). Offering training under the apprenticeship system as a form of vocational training can be regarded as a hybrid of the internal and external training market since the firm may receive a subsidy for younger workers (under 27 years of age) who undertake training under the apprenticeship system.

3.1.1. Restructuring of adult education

Currently, publicly-funded adult education is being radically restructured. Efforts are being made to scale up the training institutions and integrate supply. The aim is to achieve a flexible education infrastructure, which can respond to demand for vocational training from the labour market. In the first place, the restructuring covers facilities funded by the Ministry of Education; in a subsequent stage, training facilities provided by ARBVO will be covered. The integration does not cover solely the coordination of the various subdivisions of adult education itself, but also the relationship between adult education and (initial) vocational education. Thus, efforts are being made to extend (to adults) contract education provided by mbo schools (De Bruijn, 1993).

Training under the apprenticeship system is to be concentrated in mbo schools where it is connected with vocational training consisting of short courses, the Regionale Opleidingscentra (Regional Training Centres, ROCs). Training provided by the ROCs accords with the drive for administrative decentralization. In the ROCs, basic education, vavo, bbo, mbo and training for job-seekers are provided with the aim of enlarging the education on offer. Ultimately, the intention is achieve a comprehensive **Law on Vocational Training** coordinating mbo and adult education. For the sectors of vocational training consisting of short courses (primarily the apprenticeship system) and Vavo, a scaling up and more independence are being achieved in 1993.

Firms may also make use for the internal training market of all segments of the system of adult education. Thus, increasingly vocational training consisting of short courses (apprenticeship system) is being offered as vocational training. The same applies to courses of basic education. A major aim of the restructuring of the system of adult education taking place at present is directed towards enabling publicly-funded facilities better to react to that market.

Starting qualifications

Alongside the restructuring and integration of the various facilities (ROC training), above all the promotion of starting qualifications for employed and unemployed persons and, as a consequence, "continuing learning" during one's career (MOW, 1993) are also central to policy on adult education. In the Rauwenhoff Covenant, mentioned in the preceding chapter (Uitleg, 1992), agreements have been concluded with organized industry with regard to the drive for basic qualifications at the level of the primary apprenticeship system for all workers. In this connection, vocationally-oriented adult education and in-house training have an important task. It can be stated that there is a demand for catching up on training for workers which do not at present have the minimum level (approximately 650 000 workers). In the discussion following the Covenant, it is regularly pointed out that in practice not everyone will be able to obtain this qualification and that it is also not necessary for all jobs in industry. On the other hand, it can be assumed that some of those workers have in fact reached that level through work experience and vocational training. In that connection, attention is also being given to possibilities for the assessment and certification of existing qualifications. The British model of National Vocational Qualifications is regarded as an example and as a source of inspiration in this regard.

3.2 IN-HOUSE TRAINING

Different figures are circulating on worker participation in vocational training, ranging from 10% to 35% (Boot, 1989). On two occasions, in 1986 and 1990, the CBS has conducted a nationwide survey of workers on the extent of their vocational training (CBS, 1988, 1993). It can be observed from those surveys that in the course of 1986 25% of workers took some sort of course. In firms which offer training themselves ("active trainers"), the corresponding figure was one out of three workers. 440 000 workers took an internal vocational training course (CBS, 1988). In 1990, the training effort appears to have increased sharply: there were over 1.1 million participations in training, representing a 57% rise on 1986. Corrected for the increase in employment, this means that now 34% of workers are taking part in a form of vocational training (a rise of 34%) (CBS, 1992; Onstenk and others, 1992).

Vocational training involves large sums, but only a relatively small fraction of direct employment costs. In 1986 the cost of training (including lost working time) amounted to almost Hfl 2.2 billion, or 1.5% of direct employment costs. In 1990, the figure was almost Hfl 3 billion, or 1.7% of direct employment costs.

The participation figure seems somewhat flattering. Since participations are counted and not participants, the percentage is lower on account of double counting (participants who take more than one course in a year). In addition, public authorities and the whole of the small-firms sector are not covered by the survey and both those sectors are characterized by the relative low effort they put into training. On the basis of another survey carried out among the working population, De Grip and others (1990) came up with a percentage of 23.5% of employed persons as having taken a retraining, conversion or further-training course between 1980 and 1986.

As far as the content, level and aim of the training on offer are concerned, only a few overall data are available. Most training courses are taken in order for the person concerned to be able better to perform his or her present job (industry-oriented or job-oriented training). A large number of the courses taken are attended in the interests of the direct performance of the job of the person concerned. The courses taken therefore follow naturally from the job performed and hence, for most workers, are an extension of their initial training (the principle of the "shoemaker sticking to his last", De Grip and others, 1990). The level of most training courses is comparable to mbo (Bronneman-Helders, 1988). As a result, some of them are probably difficult for lower trained persons (namely those with only basic education) to get on to.

As far as the content of the training is concerned, technology (18%), automation (17%) and other courses (16%) are the chief categories. Banking and insurance (8%), marketing (8%), management (9%) and social skills (9%) are relatively weakly represented (CBS, 1988). From other investigations, it emerges that economic administrative courses, including much business administration and, above all, information processing, prevail. Slightly less than 20% are accounted for by technical courses, with marketing also making up 20% (Allart and others, 1990).

3.2.1 Differences in participation in vocational training

Participation in vocational training is not evenly spread. On the one hand, there are differences between firms as regards the extent to which training is offered. In certain sectors, more training is offered than in others. Smaller firms train less than large ones. On the other hand, there are differences in the characteristics of participants. In general, it can be said that women, older persons and persons with a lower degree of training take part relatively little in internal vocational training. As far as women are concerned, this is offset somewhat by their higher participation in external training. We shall briefly examine below the differences between firms and somewhat more extensively the differences in participation according to age and level of training.

Characteristics of firms: sector, size

Firms differ as regards the extent to which training is made available; and the largest differences are between sectors and size-dependent.

The branches of industry with by far the highest number of participations in 1986 were "industry and minerals" and "banking and insurance, commercial services" with 35% and 29% respectively of the total training effort (CBS, 1988) The banking and insurance industry records a high rate of participation in both internal and external training, industry a lower score in percentage terms, but in view of the number of workers involved a high participation in numerical terms. Goods manufacturing firms score relatively low, service-providers and the public sector relatively high (Allart and others, 1991).

Large firms are more training-intensive than medium-sized and small firms (Trendrapport 1990; Boot, 1989). In 1986 firms with more than 500 employees spend 2.7% of their employment costs on training (as against 1,5% for all firms). In 1990 that figure increased to 3.5% (compared with 1.7% for all firms). Whether the low amount of training offered in SMEs is offset by a higher rate of on-the-job training (Boot, 1989) has not been directly investigated. In any event, it seems that the lack of adequate, clearly apparent training on offer is also relevant (Van den Tillart, 1991).

Age

Participation in in-house training is clearly unevenly distributed according to age. There is a plain decline with increasing age (Boot, 1989). Young people under the age of 26 take part the most in courses (Allart and others, 1990). This age difference occurs above all in the economic/administrative and medical/caring sectors. In addition, it is mainly those with a navo, vwo or mbo diploma who take courses to a considerable extent in relative terms and, within that group, mainly persons with general training and with economic/administrative training. One year after leaving school, 38% of persons with an mbo diploma are still taking part in training. After 3 years the percentage declines to 35% (Jannsen, 1991). Lower trained persons account for only 7% of all participants in training. 21% of the participants are over 35 years of age, whereas this age group accounts for half of total employees (Wong and Schokking-Siegerist, 1987).

Table 3.2 Participation in training and in-house courses according to age

	- All training - share of potential working population - at the specific time	- In-house courses - Share of employed persons - over one year
all	15.1	10.4
20-24	27.6	11.5
25-29	22.0	13.6
30-34	17.8	11.7
35-39	16.4	11.1
40-44	11.1	10.7
45-49	7.2	9.1
50	6.1	5.2

(Taken from Boot, 1989)

It appears from research carried out in 1988 that the group of workers of over 40 years of age within the potential working population (including the unemployed) take part in courses considerably less than younger groups (Table 3.2). This effect diminishes if regard is paid to the participation of employed persons in vocational courses (over the whole of a year). In that case, participation of older persons falls only a little, only the over 50-year-old group declines to 5.2%. From a repeat investigation carried out in 1990 it appears that that difference is diminishing somewhat: the younger groups are participating somewhat less in comparison with 1988, older workers somewhat more often (Allart and others, 1991).

Differences according to training

Differences according to training are somewhat more pronounced than those depending on age. Participation falls commensurately the lower the training is (Table 3.3). People with lower training more often work for a firm which offers no training (Allart and others, 1990). According to a recent repeat investigation, the pattern seems to have altered slightly. Only persons whose training stopped at a low level participated somewhat less (Allart and others, 1991). Low trained workers in firms which offer training participate much less often in training (Boot, 1989). Even in the training-intensive banking world, training is very unevenly distributed. Not only do the four lowest job groups (with the lowest preliminary training) undertake less training (51% as compared with 78% for the highest job groups), but furthermore it is precisely the lower job groups which principally study during their own time (Tijdens, 1989).

Table 3.3 **Participation in in-house training courses depending on preliminary training, 1988**

	Course organ. in house	x participation rate	= percentage in 12 mths.	including at that very time
basic educ.	43.0%	11.4%	4.9%	3.6%
LBO/MAVO	46.9%	18.2%	8.6%	4.9%
LBO/HAVO/VWO	54.3%	23.2%	13.2%	6.9%
HBO/WO	75.1%	23.2%	13.2%	6.9%

(Taken from Boot 1989)

Persons with a lower level of training take part mainly in (very) short forms of training (Van den Berg and Warmerdam, 1987; Wong and Siegerist, 1989; Allart and others, 1991). It should be observed in this connection that the lack of availability of data on on-the-job training is also disadvantageous here. From foreign research it appears that it is precisely persons with a low level of training who, when they do obtain training, often get a form of on-the-job training. From recent case-study research carried out in the Netherlands, it appears on the one hand that persons with a low level of training regard learning at the workplace as the most important way of obtaining a qualification, yet on the other hand they are dissatisfied with the possibilities for learning at the workplace (Warmerdam and van den Berg, 1992).

An aggregate analysis of the available figures shows that participation in in-house training and other forms of adult education by persons with a lower degree of training in general (and of persons over 35 years of age in particular) is exceptionally low in the Netherlands (Onstenk and others, 1992). Only about 3 to 4% of persons with a lower level of training are participating (at any given time) in in-house training, whilst the equivalent percentage for all workers is around 6 to 8%. Older persons, too, participate relatively little. In general, the level of training is a better predictor of participation in training than age, although in the case of lower-trained workers the two factors reinforce each other. Depending on how it is specifically measured, only 1 to 3% of workers aged over 35 take part in a form of in-house training. Hence they account for about 3% of total participants, whereas they make up 8.5% of the working population.

3.2.2 A new training policy?

It appears from recent research (Onstenk and others, 1992; Van den Toren, 1991) that firms are beginning to become concerned about this uneven distribution and initiatives are increasingly being taken to intensify training for the lower trained and older workers. The reason for this is, in addition to the aging of the population and the lack of sufficiently highly trained new labour on the labour market, chiefly technological and organizational

innovations. It appears from this research that the principal impediment to training this group of workers is not so much lack of willingness or potential to undergo training, but above all the absence of suitable available training (cf. Hofman and others, 1991; Van Terwisga and Van Sluijs, 1990).

Firms' training effort is markedly increasing. More and more firms are putting efforts into giving workers qualifications during their careers, prompted not only by the difficulties in filling vacancies, but also with an eye to the on-going changes in technology and organization and the resultant increased requirements for qualifications which attach to jobs. The background to this intensified training drive, which has been appropriately called a "new training offensive" (Hövels, 1991), is the introduction of new technology, changes in the market (internationalization, competition) together with the lack of connection between initial vocational training and the labour market which is caused by changes in job requirements and the need for specific qualifications (Brandsma and Peters, in preparation).

Internal training is in the first instance often addressed to workers who have already taken part in additional (vocational) training. In general, it can be said that the higher the level of initial training, the higher the degree of participation is in-house training (Onstenk and others, 1992). However, in addition in this respect provision is also made for an increased training effort for groups which until now have been rare participants in training (women, persons with a lower degree of training, older persons). There appears to be a convergent movement under way whereby both the public authorities and firms are appreciating the importance of a basic level of prospective professional skill (starting qualifications) on the part of all workers. An important role is played in this connection by demographic trends. As a result of the falling birth rate, the flow of school leavers who are graduates or have some higher form of training on to the labour market is declining.

Training demands a substantial level of investment. At the same time, it is becoming increasingly apparent that (purely) formal training away from the workplace has clear limits, both as regards available time (in particular, production staff are hard to do without) and as regards effectiveness (transfer to the work situation is often problematic). This leads to increasing interest in training and learning at the workplace. Larger firms especially are developing structured training and courses which can be given at the workplace (Kruijd, 1990; De Jong, 1992). In addition, the promotion of the learning effects of the organization of the work is increasingly under discussion in the new production concepts and approaches to integral management (see Chapter 5), in which investment, reorganization and training are regarded in close connection with each other (Terwisga and Van Sluijs, 1990; Onstenk, in preparation).

3.3 Training and conditions of employment

Training is relevant within conditions of employment in the Netherlands on various levels. In addition to the national level, which has already been discussed and which is significant especially for the formulation of policy and general objectives, the levels of the branch of industry and individual firms are central to the actual implementation of policy. At the level of the branch of industry, this relates above all to collective labour agreements (and to the education and training funds governed by those agreements). At the level of the individual

firm, what is involved is agreements between the enterprise council, trade unions and management.

Collective labour agreements

In the corporatist world in the Netherlands, pay negotiations are conducted at the level of the branch of industry on the basis of centrally determined macro-economic data (the "the margin for pay increases"). The level of pay is a central part of the collective labour agreement concluded for each branch of industry. In addition, they embody agreements on other conditions of employment, including employment measures.

Attention to training has emerged most clearly in recent years through the fact that an increasing number of collective labour agreements also embody training agreements under which part of aggregate wages and salaries is earmarked for training. In 1989 64 out of the 94 major collective agreements contained training agreements (Boot 1989). 30% of collective agreements set out agreements relating to training under the apprenticeship system, 40% on retraining, conversion and further training. 34% of the collective agreements examined embodied education, training and development funds. These were, not altogether surprisingly, above all collective agreements concluded for a branch of industry. 14% included agreements on research and further consultation (De Vries and Hövels, 1991).

Whether these agreements actually result in a greater training effort is not clear. Brandsma and Peters (1991) observe that employers and workers often have a different definition of training. Employers have a preference for firm-specific, directly productive forms of training, whilst workers and trade unions give preference to more general training aimed at vertical mobility. This discussion comes up again in connection with the promotion of training on the job (Ontstenk, in preparation). The difference may result in an overall agreement on the need for training yet not lead to concrete training measures. Little is known about how much money for education is actually spent. There is evidence that there has been underspending in past years. In many cases, the funds are not used up completely or are employed primarily for training for intermediate groups and the more highly trained. In successive collective agreements, the training agreements continue to take effect (De Vries and Hövels, 1991).

In particular in small and medium-sized firms there is relatively little participation in vocational training. Underutilization is due in part to the lack of a tradition of training and to a lack of training infrastructure (Van den Tillaart, 1991). Traditionally, learning through experience - in particular in more old-fashioned firms - plays a major role. The firms have no training officers. There is often little specific training on offer. In many cases, training at the level of the branch of industry is confined to initial training. As far as retraining, conversion and further training are concerned, competition between firms also plays a part: there is no desire to train people for one's neighbour. Research into needs in various branches of industry shows that a major proportion of firms have recently drawn up training requirements. Researchers are observing at the present time a gathering of momentum, whereby the existence of infrastructure leads to increasing insight into training needs.

Cramer and van de Kamp (1990) find that most collective agreements have only barely taken account of the specific problems relating to the older worker. Yet the most recent data show

that a gradual change is beginning to take effect in this area, in any event at the policy-making level. Thus, the collective agreement for the metal and electrical engineering industry has contained, as from the collective agreement of September 1990, an agreement to the effect that training projects specifically aimed at target groups (older workers, women, the lower trained) are to obtain extra financial support (120% of the individual's contribution).

Recent research into the implementation of collective agreements (De Vries and Hövels, 1991) shows in addition that in the years following the conclusion of training agreements extra attention is paid to training persons with a lower level of training. Extra effort appears necessary in order to "reach the lowest levels of the organization". Managers need to be convinced of this. There is not yet much prospect of such efforts producing results. The researchers quote with cautious optimism a manager whose initial scepticism had diminished in so far as he observed that "the people are positively interested, they are more enthusiastic and they talk more about the peripheral areas of their own work. There are now people who have started mavo, English, automation and so on; there is more talk about it. People have bought their own PCs and are getting more interested in automation." There seems therefore to be evidence of a possible fanning out of increased training efforts on the part of firms into other forms of adult education. In the case of the banks, it appears that the agreements embodied in the collective agreement with regard to days off for education are applied by only 45% of those who responded to the survey.

Individual firms

Traditionally, the Dutch trade unions have had little presence on the factory floor and therefore have had little directly to do with the content of the work. With increased attention for the quality of the work, driven by discussions about preventing industrial disabilities and the further extension of employment law (see Chapter 5), more attention is emerging for training issues at the level of the firm.

In addition, the enterprise council is important at the level of the firm. However, it addresses itself above all the firm's policy as a whole. In this connection, too, training and obtaining qualifications have recently come up. Certainly, concern about the quality of the work is being expressed here too. In this connection, training can also have a part to play. In addition, the enterprise council has to advise on innovation and reorganization projects. In that context, training is becoming increasingly important, partly on the basis of a number of experiences of unsuccessful automation projects. As a result of this, the involvement of workers and of the enterprise council is to be stepped out, not solely just at the beginning (decision to introduce an innovation) and at the end (as users), but also throughout the innovation process. To an increasing extent, people are arguing for a policy which is an integral one in that respect to (Van Terwisga and Van Sluijs, 1990).

3.4 SUMMARY

Adult education in the Netherlands covers a varied array of relatively short and relatively long courses. The area (partly) funded by the public authorities consists of a number of facilities falling within the remit of the Ministry of Education and a number of facilities which come

under Employment. The private part of adult education consists of individual institutions providing correspondence courses and evening education and internal and external in-house training provided by firms. There is very much of a lack of documentation on this. Current policy efforts are designed to provide a clearer structure and to make supply more suited to the market. Alongside the restructuring and integration of the various facilities (ROC training), above all the promotion of starting qualifications for employed and unemployed persons and, as a consequence, "continuing learning" during one's career (MOW, 1993), is central to policy on adult education.

Already it is the case that vocational training and education for the unemployed and vocational training account for the lion's share of adult education taken as a whole, at least in terms of the number of participants. In 1991, there were 1 100 000 participations, representing a 34% increase over 1986. This amounts to a relatively small fraction of aggregate wages and salaries (about 3.5%).

Participation is unevenly distributed among the working population: older persons, women, immigrants and low-trained workers take part in vocational training less. Also, workers in small and medium-sized firms receive less training.

These groups therefore form an important target group for policy efforts to increase participation. Both the public authorities and branches of industry are active in this area. For the public authorities, the drive for starting qualifications is the key issue. Also the relationship between the lack of training possibilities and risks of industrial disability for older persons and low-trained workers are receiving much attention. At the level of the branch of industry, education and training is becoming increasingly important as a part of collective labour agreements.

4 DEVELOPMENTS ON THE DUTCH LABOUR MARKET

The role played by firms in obtaining qualifications has increased. Although, notably, initial vocational training has been to some extent shifted outside the firm (see 2.1.2), in recent years in particular industry has been seen to be becoming increasingly involved in vocational education (see 2.3). Efforts with regard to vocational training and other training for persons in employment have stepped up considerably (see Chapter 3). The background to this development consists of a number of trends and shifts in the employment system. In this chapter, we shall briefly examine some trends on the labour market. We shall be considering the rise of the services sector (4.1), the increase in the level of training of the working population (4.2), the slow rise in mobility in the Netherlands (4.3) and, finally, the shifts in and between internal and external labour markets (4.4). In the next chapter we shall explore the changes in the organization of work at the level of the firm which are important in connection with the changing role of firms as regards obtaining qualifications.

4.1 RISE OF THE SERVICES SECTOR

An important characteristic of the Dutch economic structure and labour market is the sharp rise in jobs in the services sector (Kloosterman and Elfring, 1991). At the end of the 1960s, that sector accounted for about 50% of all jobs, but in 1990 that figure had risen to over 67%. In particular, what is involved is professional and personal services. Concurrently, the rise in jobs in the public service has stagnated. The services sector is more differentiated and segmented. The expansion of the professional services sector (banks, insurance, advice bureaus, etc, but also cleaning firms) is a result of the expansion of support jobs, on the one hand, and of the increasing complexity of the (international) market and of the corporate environment, on the other. In this sector we are witnessing, on the one hand, a sharp rise in low-trained (part-time) work and, on the other, a real rise in the level of qualifications, which is reflected in a shift in the training sought towards both a higher level and more of an occupational bias (De Grip and others, 1990).

The expansion of personal services (hotel and catering, care) is above all due to the rise in individual incomes and to the "contracting out" of household work as a result, among other things, of women increasingly going out to work. In this sector, the trends with regard to requirements in terms of quality and qualifications are conflicting. On the one hand, professionalization is involved, as in the case of nurses where the job is being extended and differentiated and in some cases higher paid specializations are coming into being. On the other hand, at the bottom of the occupational lader, new jobs are being created which are low skilled and afford few career possibilities, such as childminders and home helps for the elderly.

4.2 TRAINING, UNEMPLOYMENT AND UNFILLED JOBS

As may be expected as a result of the growing participation in (vocational) education, the level of training of the working population in the Netherlands is showing a steady increase.

In general, the level of training of the population of the Netherlands was higher in 1989 than in 1985 (see Table 4.1).

Table 4.1 Level of the training of the population aged between 15 and 64, 1985, 1980 (in %)

	men		women	
	1985	1989	1985	1989
basic/mavo	25.6	20.9	37.0	30.6
lbo	21.4	19.4	22.6	21.0
havo/vwo	3.9	3.5	4.2	3.7
mbo*	32.7	36.3	24.6	29.9
hbo/wo	16.4	19.9	10.6	14.7

* This also includes teacher training.

Source: Kwartaalbericht Arbeidsmarkt, 1991

The differences as between men and women seem to be diminishing. In this connection, it should be observed that the relatively large number of women with intermediate training is to a large extent accounted for by administrative and caring training which has a lower status on the labour market and is less well paid than technical training, which is generally followed by men.

The working population is still somewhat higher educated than the population as a whole. Persons with an mbo diploma account for more than a third (36.9%) of the working population, whilst they are underrepresented among the unemployed and non-employed (Table 4.2). People with only basic education are, on the contrary, more often unemployed or otherwise not working.

Table 4.2 Working population not in employment and total working population (in %)

	Working population not in employment	Total working population
basic education	30.4	13.4
mavo	5.8	5.4
lbo	18.4	19.1
havo/vwo	4.6	4.1
mbo	25.8	36.9
hbo	11.2	15.7
wo	3.7	5.4
n:	565 000	6 800 000

Source: Kwartaalbericht Arbeidsmarkt, 1991

Since 1986, employment has risen slightly in the Netherlands. The rise was sharper in firms and organizations employing chiefly lower-trained personnel than in those employing higher-trained staff. This increase was due above all to the rise in indirect staff [2] in the construction industry, the transport and communications sector, professional services and the public service. Over the last 10 years, the number of unfilled jobs in construction, industry, professional services and the commercial/hotel and catering sector has shown the most rapid growth. Together they account for three-quarters of unfilled jobs (Statistisch Zakboek, 1991). In view of the number of unfilled jobs amounting to over 104 000 a year (see Table 4.3) it is clear that the supply is thin: there is a vacancy for only one out of every five persons not in employment. In addition, their level and type of training often does not coincide with the qualifications required. If the level of training (Table 4.3) is compared with the levels sought in vacancies, it appears that problems arise above all at lbo and mbo level; compared with the number of unfilled jobs the proportion of persons holding an lbo or an mbo diploma is relatively low. Some 47% of unfilled jobs are regarded by employers as difficult to fill. The most difficult vacancies to fill occur in industry and construction and are for plumbers, bricklayers, carpenters and electricians (Allart and others, 1990).

It is remarkable, and inconsistent with the large supply of untrained persons among the unemployed, that there is a great number of unfilled jobs for untrained persons which, according to the employers, are difficult to fill. The cause of this is sometimes sought by public opinion, employers' associations and economists in the slight difference between the wages for those jobs and the amount of benefit (plus the possibility of working "on the black").

---

2 By direct personnel is meant staff engaged in the primary production process, by indirect personnel staff engaged in preparatory and support activities: administration, management and the like.

In addition, however, the hardness and poor quality of the work together with its uncertainty play a role. Finally, it is observed that many so-called untrained jobs are in fact subject to requirements relating in particular to social/communications and behavioural skills. Either the school diploma obtained or previous work experience is used as evidence whether somebody possesses those skills. Such considerations play a role in particular in the services sector. Thus, women are often expected to have social/communications skills or to show care and responsibility for others although this is not reflected in the job description or in the wages paid (Van Hoof, 1987).

Table 4.3 **Unfilled jobs according to diploma obtained, 1990** (in %)

	unfilled jobs		vacancies which are hard to fill
	number (x 1000)	%%	%%
basic education	9	8.6	54
mavo	9.6	9.1	35
lbo	30.8	29	56
havo/vwo	2.8	2.7	25
mbo	32	30.6	52
hbo	12.3	11.7	47
university	1.6	1.5	44
Total	104.7		47

Source: Rapportage Arbeidsmarkt, 1991, SZW

The participation rate of women on the labour market in the Netherlands is among the lowest in Europe. Admittedly there has been some increase recently. Between 1985 and 1989 it increased by almost 8% to 55% (in the case of men it is 89%). In particular, the proportion of women with mbo training has risen. This rise is primarily the result of the expansion of employment (and vocational training) in sectors where women "traditionally work" (that is to say, administrative and services/caring jobs) and not of greater participation in "new" jobs (Van Hoof, 1991).

4.3 MOBILITY

There are only incomplete, global data available with regard to mobility and the extent to which the Netherlands is characterized by internal or external labour markets. Mobility seems to be rising in the Netherlands, both within firms and between firms. Thus, between 1983 and 1988 external mobility went up from 5% to 13% and has since stabilized at 14/15%. This

means that in 1990 15% of workers left the organization in which they worked and went to work elsewhere. The career change may be due to variety of reasons. In over a third of the cases, the reason is the threat of redundancy or lack of job security (forced mobility). In almost a third of cases, another job is sought in order advance oneself or to earn more money. 20% looked for another job on account of the content of the work (interesting work, social contacts), 10% had other reasons (Allart and others, 1991).

In any event, there is a distortion in the figures in so far as contracts for less than a year, and hence for temporary work, are not covered by the statistics. In particular, it is younger people who use temporary employment bureaus in order to go in for "job shopping" (De Grip and others, 1990). In addition, the 15% figure for mobility relates only to a change of employer. The percentage for in-house changes of job is lower: in 1988 only 5% changed their job. From an investigation carried out among employees it appears that 18% lose a job, almost 4% of them after having worked less than half a year in it. According to that investigation, almost 7% of persons every year change their job internally (De Grip and others, 1990). All in all, the Netherlands has one of the lowest mobility patterns of the industrialized countries. Only in Japan is mobility a fraction lower.

In any event, the picture changes if a somewhat longer period and a broader definition of mobility is employed: in the 1980-1986 period it appears that 49% of all workers changed their job. Vertical mobility is at the top (30%), namely for workers with diplomas of higher secondary education: havo, vwo or mbo (De Grip and others, 1990). Such diplomas give access to an (internal) career. For many persons with an mto diploma, the starting job is lower than the level for which training was given. During their careers, these workers rise to hold middle-management jobs (Janssen, 1991; Hövels, 1989).

Another form of change in career, which is often not regarded as constituting mobility, is changes in the job, for example as a result of technological and organizational changes. Changes in the job itself are difficult to measure. In some cases, the extent of participation in training is taken as an indication: in the event that the individual's qualifications are no longer consistent with the skills required, in some cases recourse is made to training. Naturally, training also leads to other forms of mobility, especially mobility within the firm (De Grip and others, 1990). The difference between a change in the job itself and mobility within the firm will not always be as clear, certainly when the change does not go hand in hand with a change in income. Training does not always have to indicate ageing or erosion of the "human capital". Overutilization may be involved and, as a result, a need for training. Underutilization may also be involved and hence a desire to rise. Lastly, training (and the offer of training) may be interpreted as a fringe benefit.

The Netherlands is characterized by a heavily corporatist structure of labour relations under which contacts between employers and employees are heavily regulated and institutionalized. Apart from macro-economic data (the "margin for pay increases"), negotiations at the central level are largely based on job classification (in order to determine differences). Job classification is based on work analysis carried out by experts. The trade unions do in fact play a role in reaching agreement on the description of the various categories and assessments, but not in their further interpretation and implementation in the firm, such as the assignment of actual jobs in accordance with the system. Although most systems embody an abundance of

descriptions, it appears in fact that the level of training and the degree of management responsibility explain most of the variation (Colenbrander and Buning, 1982). A separate point of interest is the updating of the wage and salary system and job-analysis systems in the light of the changing job structure. In addition, the systems are under pressure on account of considerations relating to merit pay, on the one hand, and sex neutrality, on the other (Van Hoof, 1991).

4.4 INTERNAL AND EXTERNAL LABOUR MARKETS

Mobility patterns are closely connected with the structure of the Dutch labour market. In this connection, a distinction can be made between internal and external labour markets. To a certain extent, alternative models are involved here. The external market is directed above all towards the recruitment of people with the right level of qualifications. The external market can be further subdivided into vocational sub-markets (in which there is a close relationship between jobs and the content of training), residual sub-markets, in which socio-legislative qualifications and a general training are the key factors, and finally complex sub-markets, whereby complex qualifications of a professional content obtained in training are coupled with qualifications specific to the particular firm. The internal labour market is coupled with investment in people, for example through training, and binding people through their careers (Van Hoof, 1987). Until recently, administrative jobs were regarded as a residual market, by which people with non-specific diplomas came into the firm at a relatively low level. These people were subsequently given training specific to the firm in-house. Recently, a decree of occupational development seems to have been taking place, which is expressed by the rising rate of vocational training.

This analytically clear classification can scarcely be derived from empirical data for the Netherlands (De Grip and others, 1990). Also internal markets are not closed systems, but are sensitive to shifts in the external labour market. These have been characterized over a number of years by a large surplus supply (unemployment). Since this situation is changing in any event for a number of growth segments, changes are also expected in the operation of the internal labour market, internal segmentation and career ladders. Thus, vacancies will become harder to fill in so far as higher requirements in terms of qualifications are laid down than are available on the labour market. A possible solution to this, whereby people are trained in-house and people are accepted with a lower level of training is in fact proposed (the cascade model, Hofman and others, 1991). External recruitment would then be aimed at lower levels of qualifications than those needed where the shortages were experienced. Hofman and others (1991), who investigated the installation and electrical engineering industry, find that applications of this model are indeed to be found, but are certainly not yet being implemented on a large scale. Applications can be found in firms applying an integral (training) policy (Van Terwisga and Van Sluijs, 1990). In increasing numbers of firms, complex sub-markets are important: people are sought with a high level of vocational training, who are then offered an extensive internal training and career path in the course of which they will obtain qualifications specific to the firm. There is an increasing split between a fixed nucleus of staff, for whom, after they have entered the firm, the internal labour market is primarily important, and an alternatively shrinking and expanding pool of shifting less trained staff. This model will probably come up against limits in future (Van Hoof, 1991), since low-

skilled work is diminishing (upgrading) and bonding to the firm is increasing, also in the case of less trained workers. A discrepancy is liable to arise with Dutch conditions of employment between performance and the reward for that performance (Van Hoof, 1990; 1991). As against increasing requirements in terms of qualifications and the associated (extra) training effort on the part of workers, there are not always sufficient conditions of employment: a divergence arises between that which workers wish for and expect and that which the organization has to offer. A good example of this problem emerged with the introduction of CNC in the engineering industry (Alders and Christis, 1988). It was open to firms to make different choices as regards job organization (integrated or separate jobs) and different choices with regard to the training path (MTS or LTS plus internal training). Larger firms and firms with more CTS equipment opt more often for separate jobs. In particular, programming is a separate job. Nevertheless, firms often wish to recruit people with MTS diplomas also for production jobs. However, such people frequently find the work dissatisfying and often disappear again quickly. In addition, they lack the machining knowledge and skills which are also required.

4.5 SUMMARY

Clear shifts are taking place in the structure of the labour market. The number of jobs in the professional and personal services sectors has risen dramatically over the last decade. Not only expansion is involved, but also more extensive professionalization and division of work.

Until the 1970s, the Netherlands had a strongly regulated labour market, through a corporatist system of national and sectoral consultation between the public authorities, employers and workers. Since about ten years ago, a tendency has been observed towards destructuring and more flexibility, which is related to shifts towards various sectors and to changes in the nature of the labour market (strengthening of professional sub-markets and integration of industrial and professional sub-markets).

The participation model on the labour market is also shifting: more highly trained people, more women, less low-trained people. Mobility on the labour market is slowly increasing, likewise the role of internal labour markets. Although a rise in low-skilled jobs has taken place, especially in the services sector, this development seems to be contributing towards persons with a low level of training and immigrants having an increasing chance of ending up as part of a hard core of long-term unemployed persons.

SECTION 2

CASE STUDIES

5 NEW PRODUCTION CONCEPTS IN THE FIRMS UNDER INVESTIGATION

In addition to the shifts on the labour market, in the Netherlands the development of new production concepts is important for the role of firms in providing qualifications and, more specifically, for obtaining qualifications in an undertaking. Three instances of this are investigated in the micro study. In this chapter, we shall first set out an overview of the state of affairs as far as concerns the development of new production concepts in the Netherlands (5.1). In this context, we shall examine the characteristics and the scope of the "new" production concepts in the Netherlands, the ramifications for the qualifications required and, lastly, the role of firms in obtaining these qualifications. After that, the firms investigated, which are representative of a number of major firms, are introduced (5.2). In Chapter 6 the firms are described more particularly in the light of an analysis of the most important changes, following which Chapter 7 examines in-house training and learning at the workplace in the firms under investigation.

5.1 NEW PRODUCTION CONCEPTS IN THE NETHERLANDS

In the Netherlands there has been a long tradition of criticism, reforms and adjustments of the classic Taylor-type model of the organization of labour. In the 1960s and 1970s, the larger firms were involved with experiments designed with humanization, restrucuring and job enlargement in mind. A characteristic of those experiments was that they mostly related to individual departments and that the main aims were inspired by humanistic considerations and by considerations rooted in the quality of the work: the aim was to eliminate the narrow, alienating and burdensome jobs in order to make the work more dignified and to motivate workers. In contrast to the current discussions about new production concepts, the organizational starting point itself was not in principal discussed on the basis of considerations relating to management, competitiveness and the optimization of competition.

Partly inspired by the Japanese and (to a lesser extent) the Swedish model, a more far-reaching debate has been going on in the Netherlands for a number of years. In addition to a number of active businessmen from large firms, the socio-technical-based approach has played a part (De Sitter, 1980; 1986). What is characteristic of this approach, and experiments based thereon (Van Terwisga and Van Sluijs, 1990), is its integral approach. Instead of being production-oriented, it is a process-oriented approach, with the regulation of the flow of production playing a key part. A central part of the plan is the avoidance of faults or the optimization of the rectification of faults. Central to job analysis is the relationship between the need for solutions and the capacity to find solutions: which problems must be resolved and what possibilities does the worker have in order to resolve them. The model is characterized by less division of labour, system integration, broadening of tasks, task rotation and the integration of jobs (for instance, production-maintenance-quality control), a less hierarchical organization and great stress on collaboration in task groups. The most important feature of the new model is the central place given to the optimization of the quality of the production process in terms of efficiency, flexibility, product quality and reacting to the changing consumer market. The concern for quality results in new requirements of the organization and sets considerably higher requirements in terms of the qualifications and flexibility of workers than the old model. Giving directions at the production level is a matter for team leaders,

often in rotation. Quality control is no longer the task of a special department or special jobs, but is a responsibility of the team. Personnel policy is more strongly directed at keeping workers in the service of the firm (reinforcement of the internal market). Consequently, career development, based on competence and performance and not (solely) on seniority, is important. Pay, too, is more closely related to performance. Efforts are directed towards securing more participation and involvement on the part of the staff. Lastly, Training and Development are regarded as an important policy aim of the firm. In this connection, training workers aims more at the achievement of broad skills and key qualifications. In contrast to the old model, the firm now expects workers who will think along with it and be capable of teamwork, flexible and oriented towards continuous improvement and concern for quality. One consequence of such a development is that a growing number of workers, at ever lower levels in the undertaking, need complex, intellectual, methodical, strategic and social skills at work, in addition to greater emphasis on the development of involvement in and identification with the firm. This is true not only of newly engaged workers with a high level of preliminary training, but also of the existing workers. And it is true of both groups that learning during their careers will constitute a decisive factor for the success of the undertaking itself.

The new model - under different names and with different emphases - is broadly discussed in literature on the sociology of labour, management and organization. However, it is unclear to what extent new organization models are actually widespread in the Netherlands. No quantitative data are available on this. Most studies describe above all examples. A number of authors are very sceptical about the gulf between nostrums from management literature and the actual course of things in firms (see, inter alia, Van Hoof, 1991). Many researchers express doubt as to the extent to which such a model is or even can be implemented on a large scale. In practice, instead of a new model, it appears above all as if there will be coexistence of different models, not only in different sectors, but also within sectors or even within one firm. In many Dutch firms, new production concepts are still abundantly under development. The Taylor-type model, as the dominant model, has not yet been succeeded by a new dominant model. Many firms are looking or are in a transitional phase. It is generally agreed that traditional models are not generally complied with; in contrast, the characteristics of the new model have not yet been sharply delineated. Many possibilities for practical implementation remain open, depending on the specific characteristics of the firm. Often, experience is still at an early stage or people are still at the stage of recommendations from advisers or policy statements by top management. In many cases, therefore, the actual change is limited in extent. In many firms, departments where a new production concept is being introduced constitute an exception within the firm as a whole. Those departments are experimental and are not (yet) representative of the firm. In relatively small firms, where new technology is introduced, it is often a question, not of radical changes, but of a gradual process. Automation frequently does not (directly) result in a fundamental change in working methods or in the organization of the work, but only to a streamlining or a faster pace of production.

For the time being, this trend of coexisting models seems to be continuing. New concepts certainly seem to be becoming more important. In this connection, conflicting effects as regards required qualifications may be observed. Thus, a number of researchers expect to see a polarization and internal differentiation of jobs, with growing complexity going together with

diminishing autonomy (see below). However, this does not alter the fact that, even if there is increasing number of jobs, there will higher requirements, not only in terms of social/communications and organizational qualifications, but also in terms of application, motivation and readiness to learn. This is true also of jobs which are supposed to be "untrained".

Quality of the work

A specific point of interest in connection with modernization of the organization of work relates to the protection of labour and the quality of the work. In particular, the legislation on the protection of labour (the ARBO Law) is far developed in the Netherlands since the introduction of a welfare paragraph in 1989. For a long time, the humanization of work and increasing or protecting workers' possibilities for learning at work were matters above all for the trade unions. In the meantime, partly under the influence of the developments which have been described, concern for the interest of welfare and the development of qualifications as a dimension of employment conditions has significantly increased also on the part of the public authorities and industry. Various aspects, which reinforce each other, play a role in this connection. The concern for Human Resources Development, which has already been mentioned, is also expressed in labour legislation in the form of more attention for welfare (in addition to combating hazards and avoiding risks to health) as an aspect of the quality of work. Thus, in the Netherlands the new ARBO Law does not lay down requirements only with respect to health risks, but also as regards welfare risks. A distinction is made between two types of welfare risk: stress and the absence of possibilities to learn. The ARBO Law has in the meantime been implemented by means of what is known as the WEBA Instrument (WEBA, 1989), by which welfare risks can be determined in a manner which allows of a variety of strategies. Possibilities for learning at the workplace are expressed to be a part of these approaches. However, the concept of learning is in many cases undeveloped. Also, there is often no explicit relationship with obtaining qualifications: learning processes are not related to the firm's strategy for fulfilling (future) needs in terms of requirements relating to qualifications. Also practical implementation leaves much to desire, although a number of schemes have been set up both at the sectoral level and in large companies.

This line of approach has acquired extra urgency in connection with the intense debate about insurance against incapacity for work (WAO). Apart from incapacity for work as a result of dangerous, heavy or psychologically demanding work (increase in the pressure of work), the increase in the number of workers benefiting under the WAO is partly an outcome of workers' being made redundant in connection with reorganizations. It is question perhaps in part of blatant misuse, with a blind eye being turned to the use of the WAO as a social measure for redundancies. However, in part it is a question of workers who lack the versatility and the learning power to operate in new jobs. One of the causes of this is the process which Thijssen (1992) described as "work-experience concentration": workers acquire more and more experience over the years in an increasing limited field, as a result of which their ability to react to new situations diminishes sharply. The promotion of learning at the workplace seems to one possible strategy for remedying this. Firms, too, are getting more of an interest in holding on to (flexible) workers, partly with an eye to the ageing population and the decreasing flow of new labour onto the labour market.

Increase in the qualifications required?

Changes in the qualifications required must be analysed in relation to changes in the content and organization of work. Not only is a higher general level required, but also the substantive requirements made of workers are changing. According to the classical Taylor model, occupational and job requirements are to be accurately determined by task analysis, which is to be carried out by experts. In theory, the work process is to be conclusively described. Subsequently, this can be used to derive a precise training profile, often in the form of a training model aimed at schools and practice (Van der Krogt, 1991). Although the model seems to be losing its dominance, it still invariably appears to be the basis for the job scheme in many firms, albeit often in a modified form. But also in the development of vocational training profiles, as forms a central part of the modernization of Dutch vocational training, the starting point was the possibility of describing in advance occupations and jobs exhaustively and in detail. As a result, key qualifications, aimed at system insight, dealing with changes, the resolution of problems and uncertainties and possible own influence on the design of occupations and jobs, remain out of the picture (Moerkamp and Onstenk, 1991).

The development of new production concepts in the Netherlands is an important reason for the aforementioned increase in the level of socially required qualifications, both with regard to the amount and level of the required knowledge and skills and as an increase in the field of application. Requirements in respect of both occupational, methodical, organizational and social/communications skills are increasing (De Jong and others, 1990; Onstenk, 1992b). However, this is certainly not a clear development. In the Netherlands, too, polarization seems to be involved: in a number of jobs, the requirements are increasing, in others they are decreasing. The overall increase coexists with an uneven development. The picture becomes even more complicated when the internal differentiation of jobs is focused on. Automation and computerization cause the requirements to increase for many jobs in terms of their complexity, but cause autonomy and discretion within the job to decrease (Alders and Christis, 1988; De Witte and Steijn, 1991). Differences are discernible as between sectors in the momentum of the trend. Shifts also occur in time. Thus, when introducing CNC equipment, firms initially often opt for a more integrated approach (in which programming and production are coupled), whilst when the number of CNC machines increase they tend to divide jobs. Also, large firms more frequently opt for divided jobs (Alders and Christis, 1988). In the case of insurance companies alternately trends towards integration and division occur.

Despite these conflicting data with regard to the actual increase in qualifications, firms are in fact demanding higher qualifications. Often they may also obtain people at that level, at least at times when the labour market is large. As a result, there is an increasing discrepancy between the performance which firms demand and the rewards (in terms of remuneration and quality of work) which they provide (Van Hoof, 1991). In the past 25 years, the level of training has risen faster than the level of job (Huygen). As a result, an increasing problem of underutilization is arising. As causes for that development, Wielers and Glebbeek (1990) point to aspects such as the possible higher productivity of people with "too high" a level of qualifications, firms' desire to build up a surplus of qualifications with a eye to innovation in the future and the possibility that, compared with earlier, the same competence, as a personal characteristic, is to be found at higher levels of qualifications than was previously the case (people are not becoming worse, but learn, as a result of the greater possibilities, longer).

Longer participation in training is not so much caused by the fact that a higher level of qualifications is required, but by the competition for scarce "good" jobs, as a result of which employers can always choose the most highly trained (and the lower trained are therefore excluded). It should be observed that in these investigations the evidence used for the level of jobs and in particular the content of the job often lag behind the actual changes. Also, these studies are generally based on technical jobs, where a more differentiated system of vocational training exists. In the case of banking and the insurance industry for example, which account for a relative large proportion of new demand for intermediate vocational training, qualification requirements have indeed increased, although that is not reflected in an increase in the level of jobs; an intermediate training is demanded for (production) desk jobs (De Grip and others, 1990).

Integration of learning and training into company policy

An integral and strategic approach to learning and training is essential for new production concepts (Van Terwisga and Van Sluijs, 1990; Onstenk, in preparation). Change is a key issue as regards new production concepts. The drive for continuing improvement, just-in-time production, concern for quality and flexible production is constantly facing the organization of work with new challenges. In that sense, it is not possible to speak of a once for all process of change with a plain difference in terms of before and after. Rather, the transition to new production concepts entails a transition from relatively stable forms of organization, qualifications requirements, management styles and jobs to a situation of strategic change. "Change" tends to be the norm in the organization rather than the exception. Change is inherent in the new model as a result of the drive for continuous improvement in the production process, a higher degree of job integration, new quality standards, flexible reaction to changes in the market and product differentiation. New production changes are often associated on the shop floor with active restructuring, radical re-organizations of the firm and a sharp decrease in staff, for example as a result of the farming out of both very specialized and unskilled work. New production concepts are a two-edged sword: jobs are enlarged and require higher qualifications, as a result of which work productivity is sharply increased, making it possible to make more and better quality products with less people. This means that modernization frequently goes together with both an increased training effort addressed to existing personnel and a (temporary) decline in recruitment, and, as a consequence, diminishing demand for vocational training.

Many firms are aware of the need to integrate learning processes more into the organization, but have not yet made great strides towards putting this into effect. In some cases, even a trend to the contrary can be observed. In particular, training and personnel officers frequently stress the link between organization issues and learning and training, but many organizations are still at the beginning of that road (Van Terwisga and Van Sluijs, 1990). The integration of training and qualification issues into the changing organization has often not made great progress, owing to a limited understanding of the process of change and the absence of an overall approach. Admittedly, managers and automation experts have in the meantime become convinced that "naturally" training must take place. However, it often still remains an unimportant item of policy and is seen above all in terms of the traditional training model of adapting (individual) workers to the organization. There is much less success in thinking in terms of a strategic integration of training and learning into company policy and in terms

of stepping up possibilities for learning within the organization itself. This problem sometimes arises precisely in those firms which have a long tradition in the field of vocational training. People are so accustomed to "going on a course" as a condition of employment and a "right" that it is difficult for the idea of an integration of working and learning to gain both workers' and managers' acceptance on the shopfloor.

5.2 THE FIRMS INVESTIGATED

The cases analysed in the micro study provide exemplary evidence of the trends described above in general terms. Three case-firms were investigated in the Netherlands. Two of them belong to the processing industry. The first case is a pharmaceutical factory in which the production-control system for bulk production has been radically changed by means of extensive computerization. The second case is an advesive-manufacturing firm working directly for the consumer market in which a radical change in the job structure and improved quality has been effected without extensive renovation of the production process itself. The third case is a production automation department of a large bank.

The processing industry

The processing industry is an interesting sector for many reasons. It is a growth sector with a reasonably strong market position. Fast technological developments are taking place with a resultant sharp increase in investment per worker. The nature of the work is changing markedly: process-oriented production processes, characterized by low-skill and markedly physical/sensory work, are being replaced by automated production processes in which the work tends to consist more of abstract automated process control entailing a high degree of responsibility on account of the risks of loss and the costs of stopping production. This characteristic change can be regarded as symptomatic for a growing series of industries. It does not affect only the "traditional" oil and chemical industries, but also the paints, foodstuffs, glass, paper, rubber and brick-making industries. This development is driven, not only by the introduction of new technology, but also by increasingly strict environmental requirements and statutory provisions on worker protection. At the same time, the changing market structure - with its strong stress on quality products - also plays an important role (Bilderbeek and others, 1992; Frietman and others, 1992). Traditionally, the sectors in question have employed many low-skilled personnel and have had a negative image on the labour market on account, among other things, of shift work and the low quality of the work. The technical and organizational developments are leading in this sector to a clear drive to find new production concepts whereby (in view of the low degree of training of the existing personnel) great attention is paid to training issues and in-house training. There is a close connection between the field of education, sectoral organizations and firms, which is reflected in particular in strong involvement in the apprenticeship system for vocational training in this sector.

The first firm investigated is a department of a bio-technical group operating internationally and employing some 2300 workers. It produces bakers' yeast, penicillin and enzymes. The group consists of a number of independent divisions which are profit centres. The department investigated forms part of a division which supplies basic materials to the pharmaceutical industry by bulk production. The division is independent as regards the organization of

production. The training budget, too, is decentralized. The division which is the focus of the study is the penicillin processing plant, in which Penicillin-G is manufactured in a number of processing stages from supplies of ferments. Forty people work in the department in 5 shifts, each shift consisting of 8 operatives and a team-leader. Production has been extensively automated in recent years. As from 1987, new equipment (automation and control by means of VDUs) has gradually been introduced. Since 1991 a new, fully-automatic plant has been started up which is to be remotely controlled from the processing plant. The introduction of the new control equipment has given rise to a shift within production jobs entailing different requirements in terms of worker's qualifications. In recent years, a number of quality projects have taken place with a view to improving the production process, which have reinforced this trend further, both through the heightened role played by training and through the heavier stress placed on workers' individual contributions, independence and ability to cooperate.

The second firm is a small, independent division (40 workers) of a large Dutch paint manufacturer (1500 workers), which itself is part of a Belgian multinational. The division investigated produces various types of adhesives and sealants in a large number of different packagings, principally for the construction and consumer markets. Although parts of the process (in particular packaging) have been partially automated in recent years, it is still to a major degree a question of diverse operation-based production stages and of direct manually controlled production. Innovation relates above all to quality assurance and improvement. The firm is experiencing a relatively stable market situation following a steady increase in the past. In the last two years, profits fell back, which was the reason for increasing the firm's autonomy by introducing a divisional structure bringing marketing and production closer together. Since then, sales and profits have picked up again. Until recently, the firm was dependent on the parent company as regards production management. That entailed among other things the firm's participation in innovations decided upon by central management. With the introduction of the divisional structure, production management has been decentralized. The expectation is that this will mean greater freedom of choice as to whether or not to take up certain innovations. The firm is operating on a reasonably tight labour market, namely that for better trained workers. This means *inter alia* that it has to be satisfied with less well-trained persons than it would actually like. The desired qualifications are provided by means of an internal rotation and training programme coupled with a career model.

Production automation

The third case is taken from the fast-growing services sector. It relates to a production automation department in the professional services sector (a large commercial bank). Like other branches of the professional services sector, the banking sector is characterized by fast-moving technological and organizational change. A large expansion of the product package is taking place, in conjunction with automation and standardization. As a result, the significance and organization of the automation department has radically altered. In an initial phase, automation resulted in a sharp separation between specialized and highly skilled automation tasks (for example, system design and management and process support) and low-skilled direct production work (central data entry, punch-card processing, etc). With the arrival of decentralized on-line data entry through terminals and personal computers at the workplace, the pure production data entry by data processors, etc is declining. The manual

or machine processing (sorting, checking, reading, etc) of punch cards is also declining. Against this, the number of transactions carried out each day through the automation network is increasing very sharply. As a result, a new task area arose, which can be described as the day-to-day management of automated systems. The production departments are becoming responsible for that (automated) part of production. Quality improvement, flexibility and change are the key words in this respect too. Comparable processes may also be discerned in companies in the insurance industry and in the State sector (tax, social services, etc). There are also clear parallels with the remote control of automated systems in manufacturing industry. In this sense, it is possible to speak of a typical "modern" form of work.

The department under investigation is a good example of this development. The department's "customers" are primarily other departments of the bank (branches, processing, booking entries, transfers, etc), but in addition services are also provided to outside customers (electronic banking). The department supplies automation aids to end-users within the bank and is responsible for the central day-to-day management of the in-house network. Whereas formerly the department dealt mainly with punched-card machines, the department's principal function now is to prevent and overcome bottlenecks in the various standardized computer systems and to support user groups with the aid of the available documentation, handbooks and guidelines. The division manages on a day-to-day basis the automated processing of over 9000 batch jobs and 2.2 million transactions effected on on-line data-base management systems. Employees work in shifts, which is unusual in the banking world.

6 ORGANIZATION AND QUALIFICATIONS IN THE FIRMS INVESTIGATED

The three firms were investigated in detail through interviews with key persons, managers and workers and through the assessment of documents, policy plans, etc. Three partial reports were drawn up on this. The main data are summarized herein. This chapter describes the working and organizational characteristics of the firms under investigation. The type of the processes of change (6.1), the effects of the qualifications required (6.2) and personnel policy (6.3) are described in succession. The following chapter examines training policy and learning at the workplace in the firms under investigation.

6.1 CHANGES IN THE CONTENT AND ORGANIZATION OF THE WORK

The changes in the content and organization of the work are described below for the firms in the processing industry and production automation in the professional services sector (the bank). Two key issues are present in both branches: task enrichment, job expansion and diversification combined with a more task-group oriented working method, on the one hand, and concern for quality, on the other. In two cases, a major role is played in this connection by automation/computerization, which is leading to a shift from more product-oriented execution work to more supervisory, process-control work. In the third case, automation plays a role only at a remove.

6.1.1 The processing industry

The shift taking place in the processing industry is the clearest. To an increasing extent, product-oriented production tasks are being replaced by process-oriented supervisory and control tasks. The driving force behind this process is the combination of the emergence of advanced equipment owing to on-going technological development, fundamental changes in the market situation necessitating greater efficiency, more intensive product differentiation, higher quality requirements and tighter environmental and safety requirements.

The first case matches this picture to a large degree. The factors prompting the change are above all technological and business-oriented (more concern for quality). For a number of years, the firm has been pursuing an active policy in order to react to increasing requirements demanded of the products by the market and to the need to automate. In order to increase the effectiveness and efficiency of its core activities, it initiated broad integral quality programmes. The essence of this is that each unit in the organization is considered afresh. Product and production quality, meeting internal customers' needs and the quality issue with regard to staff are central. In the department under examination, this entails a result-oriented manner of working in which specific objectives for each product/market combination and assessment data fixed by the terms themselves constitute the guidelines for action.

Since 1987 the computer has gradually been making an entry into the firm with process control evolving from mechanical to automated control. The most recent step in this connection is the introduction of remote control: controllers in one plant control the process going on in another plant. The operative's job has expanded from a narrow production job to

become a broader (all-round) package of tasks. This is followed by a stage in which both his or her job is expanded as a specialization (see also career policy, section 6.4). Working with VDUs has various consequences for operatives. One of them is that changes are invisible in that software is modified without their being clearly apparent at the control panel beforehand. Another consequence of working with VDUs - although this is contrary to many operatives' experience -is that there is a danger of loosing an overall view. For those reasons, some operatives prefer working with two VDUs at once rather than one, whilst others prefer still to watch the trusted wall chart. Since remote control is also becoming possible, an important means of supervision, namely direct contact (from vibrations, hitches, sound, etc.), is missing. Quality projects initiated by the firm have an impact in every part of the organization. The effects go beyond the direct aim (of strengthening the (competitive) position of the firm) and are affecting the culture of the firm, which has become more businesslike and clearer. This is also a greater emphasis on the individual contribution made by workers, with an appeal being made to their responsibility, and better communication processes, which also benefits shared responsibility. At the same time, the role played by training has increased. Quality projects provide the basis for facilitating and stimulating the development of the firm and its workers.

The most important factors behind the change in the second case are the changing market situation and more stringent legislation, plus, to a limited extent, technological developments (although the extent of production has changed, the production structure has hardly changed at all). The original impulse behind the radical alteration in the organization of the work by introducing a task-group structure was to combat absenteeism through illness and expected recruitment problems. At a second stage, a combination of new technology, stricter environmental and safety requirements and the drive for better quality (certified in accordance with ISO standards) played a role at group level. The response was to build a completely new paint plant. This was not directly relevant to the establishment under investigation, where another product is manufactured on a much smaller scale (but admittedly using a related production process). Safety and environmental aspects and the desired improvement in quality were important factors here. The chief aim of the innovation was first to increase motivation and reduce wastage and absenteeism on account of illness and secondly to improve production. In the establishment under investigation, greater flexibility in reacting to customers' wishes was also a major objective.

The most significant characteristic of the change in the firm was the introduction of product groups along task-group lines. This involved adding to production jobs minor maintenance tasks and the task of quality-control. In addition, day-to-day production planning is carried out on the shop floor under the new structure. The new organization of the work results in more varied work, more complex, more widely composed tasks, more insight into the process and quality and safety aspects, and lastly more independence and more latitude.

The renovation breaks down into two stages. Opting for a revamped organization policy at an early stage seems to be an important starting point for adequately reacting to new problems arising for the firm. Initially, the new form of organization (task groups) was chosen on account primarily of personnel problems. When next the increase in quality (ISO standard) and the staffing of the new plant came up, the new product-group structure seemed to be a good starting position.

6.1.2 Automation in the professional services sector

The most important factor behind automation in the professional services sector is the growth in the number of transactions. The traditional job in the bank involved the payment system and the grant of loans to firms. Since the 1960s its customer base has expanded substantially in terms of individual account holders. In recent years the provision of professional services has risen sharply as a consequence of the farming out of support tasks and the mounting complexity of the (international) market and the business environment. The bank's business is characterized by increasing concern for costs, productivity and efficiency and automation and taking more heed of the market (provision of services and customer advice). Whereas automation was initially intended to bring about cost control and efficiency, increasingly product differentiation and customer advice had to be taken into account. The fast increasing administrative processing of inland payment transactions has been centralized and housed in regional administrative centres, where principally punch work was carried out. Subsequently, the Data Communication Network was developed. This made on-line transactions possible within the bank as a whole and between banks. "Automation products" such as cash machines, ATMs, tele-banking services and payment diskettes are being introduced. In recent years, investment in automation has risen hugely.

This development has far-reaching consequences for the automation department under investigation. The importance of the automated processing of internal and external payment orders is becoming ever greater. From being a support department at the margins of the organization, the automation department has become an important key component with its own terms of reference for production. The present department is the outcome of a reshuffle of the tasks and responsibilities of two departments set up respectively to provide support for automation and to carry out/supervise automated transactions. The starting point for the reshuffle was the decentralization of responsibilities and the concentration of tasks. Similar tasks and activities were bundled into service units. The quality requirements are laid down in particular in Service Level Agreements in which undertakings are entered into with in-house and external customers. The department has become more businesslike and higher requirements are made of processing and staff. This is reflected in quality projects, increased training efforts and a new career policy.

6.2 CHANGES IN THE QUALIFICATIONS STRUCTURE

Changes in technology and the organization of work also lead to changes in the qualifications required.

6.2.1 The processing industry

Traditionally, the work of process operatives was based above all on routine. Mostly, people then had a low level of training at the time when they entered the firm. The knowledge necessary for the processing was acquired through a protracted process of slow progress. This pattern changes under the influence of automation and computerization. Great emphasis comes to be placed on product-related know-how, the market/consumer, the machinery and

the organization. Learning routine becomes less important. However, it still plays a significant role in the relatively little changed working process of the firm producing adhesive. In the pharmaceutical firm, the stress is on innovative know-how. In both cases, efforts are directed towards integrating (simple) maintenance and quality assurance into jobs.

In the pharmaceutical firm, a conflicting trend is at work. On the one hand, the knowledge required is becoming broader, on the other - since there is more to control with the new technologies - the knowledge required is more specialized. Whilst routine and understanding were formerly acquired during the work itself by doing it over and over again, a reversal is now taking place: you must first have an understanding (why something works in a particular manner) before you can intervene. You must know the results of your actions. Knowledge of the process has therefore become much more important. To an increasing extent you must always be cautious when starting up new plants or processes. The problem arises that the (possible) link between cause and effect is still relatively unknown. This makes a learning process necessary: experimentation must be carried out and experience acquired. The more complex tasks are regarded by operatives as an interesting challenge and a welcome renewal of their jobs.

The higher job requirements are reflected in the firm by an increase in the level required of workers: whereas, initially, primary technical training was assumed (Vapro A), efforts are made now for Vapro B, intermediate training. The department under investigation consisted in the main of workers of that level. Generally, it is a question of upgrading jobs since more specialized knowledge is necessary, but at the same time a broadening of tasks is involved and basic knowledge is coming back onto the agenda. The background to this development lies in a combination of factors: technological renewal, corporate strategy (quality projects) and career policy. Social/communications and organizational skills are of great importance. Great value is also attached to analytical and systematic knowledge and insight (system insight, coherence).

The adhesives firm is also experiencing a gradual rise in the qualifications required. Its starting position is a large number of untrained staff. In the first stage of the renewal programme (introduction of task groups), the emphasis is placed on on-the-job training in which the trainee can develop into an all-round product-group member principally through task rotation and task enlargement. With the stronger stress placed on quality and safety policy, the emphasis is placed more on formal training, which, however, is given at and about the workplace. It is a question both of basic qualifications, Dutch and mathematics, but also of vocational training. Basic qualifications are needed to improve the functioning of product groups, to be able to deal with production and safety rules and as a stage towards vocational training. Technical training is necessary for the new plant and, in the department under investigation, for obtaining the desired quality standard. There is less of a need than there is in the first firm for key skills, partly because the firm is a small one with a relatively straightforward production process. But some logistical insight is expected of storekeepers.

6.2.2 Changes in qualifications in the automation department

The reorganization of the department has led to higher qualifications being required in the field of automation. In regard to this development, the department resembles more automated processing units in other firms and sectors than the rest of the bank. The banking industry is characterized by a real increase in the level of qualifications, which is reflected in demanding a higher level of training and, above all, in demand for more occupationally-oriented, banking training in place of the traditional general training. The banks are actively involved in the development of banking specializations within regular administrative vocational training.

In contrast, the tendency for rising requirements as regards qualifications in the department under investigation is a direct consequence of the increased complexity of hardware and software and of the increased requirements in terms of efficiency and flexibility (service function). The employees have obtained more actual responsibility for the process. They have to be able to remedy faults themselves (where formerly the job would have been given to another department). Ensuring continuing production is the central concern. A more preventive approach is taken in order to avert breakdowns. Work is not only done on a corrective basis but the employees devise solutions, where possible structural ones. The working group has become an independent unit with broader tasks within the department. The new form of organization offers more career prospects but also lays down higher requirements. The change has been great for heads of groups, too, since they are expected to have much more insight into the process. The tasks carried out by the department are becoming more complex and more insight is needed. Standard procedures often no longer suffice. Instead, there is much more room for situation-specific solutions to problems, which are evaluated in both quantitative (assessing whether fewer problems arise) and qualitative terms (fewer complaints; how customers react; can we provide more answers to questions?). These changes are leading to a higher level within the department, plus new job descriptions. The higher level relates especially to general knowledge (for instance, about database-management systems). Insight into the process leads in turn to increased motivation and keenness to learn: people tend to take up or sort out matters more quickly.

The renewal of the organization of production leads to an increase in the required level of knowledge. The general level of training of the department investigated has increased from mavo to hvo. This increase could to some extent by described as displacement: havo is laid down as a requirement because sufficient people can be obtained with that qualification on the labour market. But in part this qualification requirement is laid down as an indication of the level of abstraction and of "the ability to take part in and follow changes".

6.3 LABOUR MARKET, PERSONNEL CLASSIFICATION AND ASSESSMENT

Changes in the organization and operation of the provision of qualifications are also reflected - albeit frequently with a lag - in changes in recruitment strategy and in the operation of the internal labour market, job structure and personnel assessment.

6.3.1 The processing industry

Labour market (internal and external)

In both the firms in the processing industry, a clear role for the internal labour market is in evidence. Increased mobility is discernible in both firms. The underlying reason is the combination of higher requirements in terms of qualifications, plus the situation on the external labour market. In accordance with the trend, both firms wish to see a higher level of training on recruitment. As far as recruitment and selection are concerned, in principle more attention is paid than formerly to the possession of diplomas.
The pharmaceutical firm seeks people of intermediate level. In view of staff cuts, no external recruitment has taken place for some time. It is expected, however, that if the firm should wish to recruit, it would have to reckon with the sparse response characteristic of the processing industry. In particular, persons with mbo diplomas show little interest in working in the processing industry. In practice, no recent recruitment has taken place in the division under investigation because the firm has shrunk in terms of the number employed and vacancies have been filled internally. That was relatively easy since usually the employees are at mbo level, albeit not with processing training. An exception is the starting up of a new process. In such case, efforts are made to take on higher qualified workers from outside.

The internal market for production staff in the second firm has clearly got stronger, but only to a limited degree in so far as people can reach lower management posts. In this connection, the size of the establishment plays an important role. The internal labour market is chiefly important because of problems with recruitment and selection (although there are no vacancies which are hard to fill). Traditionally, many untrained persons (persons without vocational training) have been employed on production. In connection with innovation and quality improvement, a somewhat higher level of training is being sought with the stress being put on a somewhat higher general level. It is assumed that this is necessary in order more easily to grow with changes in jobs and in particular more readily to deal with the increased written information, quality control and consultation situations in the firm. As a result of the quality of the work, the firm has not been successful in attracting the desired level of staff on the labour market. This has been a major factor in the renewal of the organization.

In this firm, too, more internal further training is being given, importance being attached to both basic knowledge and knowledge specific to the firm and the process. In view of the situation on the labour market, the need to provide in-house training is not an incidental occurrence in connection with a particular innovation but a permanent feature.

Job structure

In the pharmaceutical firm, the most important change in job classification is the abolition of the job of "wachtchef" (charge hand). This was connected with an enlargement of the duties of operatives and of the head of the group, partly as a result of the quality projects. The personnel tasks (including operational talks and the like) and management tasks of the head of group have increased, whilst the operatives' package of tasks now includes monitoring and planning tasks: interpreting readings, placing orders, supervising the delivery of basic materials. As a result of the quality projects, "learning" has become an ever more self-evident

part of the work. Operatives themselves play an active role in this by seeking information, advice and training from the head of the group or in-house instructor and by answering colleagues' questions. Opportunities for advancement have been created for operatives. Formerly, an operative could attain only the level of all-round operative. Now possibilities have been opened up for becoming a specialist through a combination of training and experience. One aspect worthy of attention is the job of head of group, which has become an end-of-the-road post as a result of the abolition of the post of "wachtchef".

In the second firm, the change in the organization of the work has gone hand-in-hand with a change in job classification. A career path has been created whereby workers can advance from apprentice to all-round production worker, with the possibility of advancing to lower management posts. In practice there is only limited scope in the establishment under investigation for the latter type of advancement, partly because of the small size of the firm. The personnel-assessment scheme expressly covers both training and learning at the workplace (namely by means of task and job rotation) and workers' contributing to others' learning processes. Instructing colleagues and subordinates is a component of all tasks as from the level of production worker. This is valued and actively pursued by employees.

6.3.2 Careers in the automation department

Internal labour market

Banks have traditionally had a vigorous in-house labour market. People joined the bank at the lower end and worked their way up. Banking knowledge was obtained through practice. An important assumption made in the personnel policy of the bank under investigation is that all staff under 40 obtain another job every 3 to 5 years. In this way it is hoped to ensure permeability and flexibility and to maintain the organization's readiness for change. The automation department was not covered by this on account of the divergent nature of the jobs and required qualifications. In the new situation, this principle has been introduced in the department. In the early 1980s the department was characterized by relatively simple dead-end jobs (punch work, etc) in which at the end of their careers people ended up with administrative jobs. With the increasing requirements placed on the department in terms of service provision, personnel policy in the department has intensified sharply. Career paths have been charted which give people possibilities to develop within the department and within the bank. The career path requires regular training: training requirements are linked to jobs. This is clearly what is needed for anyone seeking to develop. A assessment of the potential of existing employees is carried out in conjunction with a psychological test bureau and career agreements concluded on that basis. Formerly, there were no career possibilities; now there are career plans (a career policy) based on a job training plan.

Job structure

The renewal of the organization has been accompanied by a clear intensification of personnel policy within the department. In the course of the preparation of the project, new task and job descriptions were drawn up. For each job, the task package was determined, the jobs were put together and the job requirements were laid down, together with a job and personnel

training plan. For the organization, the service of the department is described, the tasks to be performed are determined, responsibilities and powers defined and the organization structure and an implementation plan laid down. Each job progression is linked to a training period. Training and learning at the workplace are clearly forward-looking. Workers' sense of initiative is fostered by providing them with basic training and an explanation of the requirements of the career path.

7 TRAINING AND LEARNING AT THE WORKPLACE IN THE CASES

In this chapter we shall examine the key question of the case studies: what means are deployed by the firm itself in order to develop the required skills and competence. It is a question, not only of in-house training (7.1), but also and above all of learning from the organization of work or of learning at the workplace (7.2).

7.1 IN-HOUSE TRAINING

The importance of education and training has definitely increased in all three firms. Substantial investment is being made in training, with the emphasis on tailor-made training at or near the workplace. In the two processing firms the training function has become more important as a result of the new organization, which is reflected both in the strengthening of the central training department and in decentralized training activities. Training policy is an integral part of the firm's policy.

The bank has a much greater tradition of training, which is reflected among other things in the existence of a very large central training department. The philosophy behind the training has traditionally been based on conventional courses and individual staff members' access to training has been linked to their careers. For a number of years, the policy has been directed more to underpinning innovation in the sphere of organization, which entails the training's being given closer to the workplace and being more tailor made. Training has also become more strategic in the sense that it has become more forward-looking.

7.1.1 The processing industry

In the pharmaceutical firm, staff training - both formal and "spontaneous" - has acquired a more strategic position, partly as a result of the quality projects. Where previously training was primarily ad hoc, most recently pre-planned training has also been involved. The form and manner in which training is provided has been varied. On-the-job learning and training is playing an increasingly important role. This consists both of applied learning under the supervision of an in-house instructor and of workers' learning from each other and from the head of the group. On the other hand, a watch is kept for "course fiends"; not every problem has to be solved by means of training. Since training increasingly takes place during actual work, it is becoming more difficult to separate training from the work itself. In view of the fact that the training goals are in fact being achieved, this training strategy appears to be successful. The firm is placing more emphasis than before on (increasing) skills. This is reflected both in

in-house training and in the recruitment and engagement of new workers. Since the processing industry has had to struggle for a long time with a shortage of potential workers and there is little supply expressly directed at the processing industry, the firm is also putting more and more effort into further training for older workers. In this connection, extra training is given just in order to enable them to cope with the rapid (technological) changes. On the other hand, a more flexible policy is applied to older workers as regards requirements in terms of qualifications. As a result, there is a danger that if such workers drop out they will still only be entitled to less interesting jobs within the firm.

In the second firm, learning and training are regarded primarily as being the responsibility of the workers themselves. However, the firm does provide possibilities and facilities. Line management plays an important role in training policy. Line managers are directly responsible for training fellow workers and are regarded, even at the outset, as trainers and "query-answering centres". In addition, the personnel department responsible for training and staff development has been expanded, with everybody taken on having to develop and carry out training for himself or herself. This is dictated in particular by the drive for made-to-measure training. Particular attention is paid - in view of the composition of the workforce - to encouraging workers with a low level of training to participate in training. Thus, firm-specific courses in Dutch and mathematics have been developed on the factory floor, together with a modified version of the recognized technical training course, the pivotal element being practical tasks carried at the worker's own workplace. In order to carry out these tasks, workers can properly approach their head (who is often is first trained in order to answer those questions). Taking training means at the same time obtaining more in-depth knowledge into one's own workplace. The training is in the first place job-specific. It is closely linked to processes of change. It is noticeable that the need for a formal training path is determined by the new factory and the efforts to meet ISO standards, and not by the change in the organization of the work *per se* (which admittedly leads to the establishment of an informal training path through job rotation).

In the first phase of the renewal process, the task-group concept is introduced, supplemented by an informal training route based thereo to all-round worker. Emphasis is placed on training at the workplace under the guidance of a superior or an experienced colleague. Learning takes place mainly through explanation combined with doing. The jobs concerned are skilled ones. Although the workers become "allrounders" they do not obtain a training certificate. The skills required are not specified further. Increasingly the requirement is expressed for a basic level of Dutch and mathematics.

In the subsequent phase, in which efforts are being made to meet ISO standards and in which the new factory was prepared for the group as a whole, more emphasis is being placed on a formal level of training. Alongside basic skills, the policy includes efforts to obtain a technical diploma. These two steps are not seamlessly joined. The qualifications obtained through rotation and the acquisition of routine are assessed only to a limited extent in the training system. Admittedly, there is an initial test, but this is designed primarily to determine the basic level. The conditional nature of the course entails stagnation for some workers as a result of the lack of readiness of course material. In this connection, the divergent nature of the production process in the division under investigation, compared with the group as a whole, plays a role. Much attention is paid to the evaluation and certification of what has

been learnt. In so far as nationally recognized certificates are involved, they have a value on the labour market. The firm is endeavouring to guarantee the national recognition of the training through agreements with national training institutions. However, this is also causing delay, since the translation of the content of training plans to the shop floor and its recognition by the certificate-issuing training institutions require much time and consultation. In any event in view of the specific nature of the production process, above all the workers interviewed did in fact express some doubts about the practical value.

7.1.2 Training policy in the bank

Training policy in the automation department must be placed in the context of the bank's training policy. The bank has a strong tradition of training, with great emphasis on formal and centralized training. At group level, there is a large Training Department employing over 160 people. A feature of the working method of the Training Department is the emphasis on courses and the "school model": the bank has its own trainers on its staff with a training and advisory function. The Department has three main elements: advice and coordination, development of training, and provision of training. In addition, external bureaus are linked in to give more specific courses, for example on automation. In connection with the automation of production, the bank has developed a large number of automation training courses for the bank's staff. These consist primarily of general training. Recently, more attention has been paid to "learning near the workplace". In this, greater efficiency, which the bank hopes to achieve by dispensing with conventional education, plays a role, such as investigating possibilities for resolving organizational problems via learning processes. The most important problem encountered is the structuring of on-the-job training. In addition, there is also a problem in that courses frequently also have a legitimate function. The management is keen to offer a course in order to increase the acceptability of proposed changes. Conversely, workers also expect "real" training.

The higher level of training demanded serves as an indication of the level of abstraction and "the ability to take part in and follow changes". It is hoped that staff on this level will be able to give shape to their own learning processes and resolve problems. On the part of both the bank and its staff there is a perceived need "to keep moving", since a job no longer has to exist for a year. Continuing replacement through job rotation means that it is always possible to learn. The increase in the level of the existing staff has been effected through technical courses. Formally there is no havo, although the training assumes a basic havo level.

Specific training activities do not relate solely to automation, but also to improvement of quality and customer-mindedness. This is generally implemented in the form of small-scale projects. As far as content is concerned, the training consists increasingly of technical courses, occasionally of training in social skills and, compared with former times, more emphasis on treating customers correctly. In the context of the restructuring of the department, all staff took a crash course to obtain practical knowledge relevant to the department, so that all staff were given the same level of knowledge and proficiency. This covered primarily knowledge about automation in a broad sense (operating systems, file management, security, data base management systems, programming languages). The training lasted a total of 20 course days, with much time reserved for practical exercises. At the end of the training, a case was dealt

with in which all aspects of the work and what was learned were returned to. Partly as a result of a recent merger, there were major differences between members if the department's staff in terms of their knowledge of automation. For some participants, the training was a refresher course (*"an exercise for work which you have already done"*) and, for the others, "new material". The training included a large practical component. People with a lower starting level took, after the basic training, further training needed for their jobs. This consisted of individual, written lesson packs from an outside bureau.

7.2 LEARNING AND TRAINING EFFECTS OF THE ORGANIZATION OF THE WORK

In addition to paying increased attention to the design of a training policy and to the provision of courses aimed at the workplace, the firms under investigation are characterized by concern for learning at the workplace itself in relation to the changed organization of the work.

7.2.1 The processing industry

In both firms, support for learning processes at the workplace and learning while carrying out a task oneself (through task rotation) take place. There is an increase in activities and aids on the shopfloor which are intended to back up training and are often integrated into the day-to-day work. Efforts are made not only to have training material (teaching material, examples, practical instructions, etc) close to the workplace, but also to increase teaching moments in communications between workers (superiors and colleagues).

Within the context of the quality projects in the pharmaceutical firm, not only are courses given, but mutual learning processes are reinforced. The processing operatives in the department under investigation have become more independent and more critical. Admittedly, that department had a somewhat more highly trained workforce than the average. Since the actual role played by workers is stressed as an essential link in the processing, their involvement in the firm has risen. Since responsibility for the work increases, there comes to be a sort of "logistical control" over earlier and later phases of the processing: the workers look beyond the boundaries of their own work and talk with each other about the quality of the work supplied. Workers have learned to ask questions about actions which previously were taken for granted and are interested in the best way of resolving a problem and ready to learn (from each other). Learning to learn is an important result of this process and seems as a result now to be embedded in the working culture. This is expressed among other things by workers' actively seeking information and consulting colleagues, superiors and in-house instructors. Operatives themselves take the initiative of asking an in-house instructor or a colleague for chapter and verse. On the other hand, specialization takes place. In this way, operatives may become an "enquiry centre" for colleagues to approach on a particular subject, for instance safety. This gives a major boost to "ownership" of training and skills. Career policy capitalizes on this by recognizing all-round and specialist tasks.

In the adhesives firm, much attention is paid to working in new workers and job officers and superiors are deployed on this. Superiors, supervisors and highly qualified workers (for

instance, in the quality control department) have a recognized training function. The career path which is plotted out from apprentice to all-round worker constitutes an informal, but organized, training path whereby workers learn to perform various tasks in the production process with the help of explanations and support from their superiors and colleagues, and insight into the process, concern for and awareness of quality, and planning skills are developed. In particular through the job structure and the assessment system, the knowledge acquired through job rotation is also evaluated and determined. However, there is scarcely ever a relationship with initial training, or even with the desired, more formalized technical training.

In this firm an important function is assigned to work consultation in the task group. In this context, workers are encouraged to exchange information and discuss problems. This also forms part of the system of training in the workplace which has been developed in the firm. The drive to achieve ISO standards constituted a major incentive for formalizing knowledge (for example, notes or structured discussion). In addition, within the group the new plant played a role. There is an interaction between the formalization of the production process and the formalization of training. In order to be recognized for the purposes of ISO standards, there has to be a detailed description of tasks and jobs in which risks and bottlenecks are analysed. Those descriptions appear to afford an excellent starting point for discussion in task groups and for the development of training specific to the workplace.

7.2.2 Learning at the workplace in the automation department

Learning at the workplace is still in its infancy. The bank has traditionally placed great stress on the course model, although recently more attention has been made to learning near the workplace. In addition to an increasing practical dimension to training and the arrangement of made-to-measure paths, other elements of learning from the organization are discernible. Thus, a major role is played by job rotation, whereby staff work in different positions within the department, but also in other departments of the bank. The possibility of job rotation was in practice coupled with the carrying out of reorganizations. In addition, the thorough basic training plays a role in stimulating active self-teaching process in dealing with problems in the course of production.

Other learning occasions are provided by the modernization process itself. Information is given on the occasion of each modernization operation. There are also manuals and instructions. Alongside the practical dimension of training, an attempt is being made to design the work environment as an "exercise environment". Production takes precedence, as a result of which external factors can have a strong influence on the possibility of learning. Thus, the fact that it is very hard to plan the work, since it is very heavily dependent on the number of customers and their wishes, is a hampering factor. Also the fact that people work in shifts is a hindrance. No only is it hard, but it also means that a considerable time can separate the occasions on which one gets to deal with a given problem (activities occur generally at fixed times). This makes it difficult to build up experience. At attempt is being made to protect the scope for learning by means of an internal division of work. It emerged from discussions with staff that the department's new importance, combined with the insight that they had obtained into the processes through the basic course, was in itself a clear stimulus to learn further themselves, to resolve problems and to sort matters out.

SECTION 3

SUMMARY AND CONCLUSIONS

This, the final chapter, consists of three sections. First, the principal findings of the macro study are discussed (8.1). Next, there is the final summary of the findings made from the firms investigated (8.2). Finally, there is a discussion of the question as to what insight the cases have afforded with regard to the complex relationships between the development of new production concepts and strategies for providing qualifications in industry and the national system for obtaining qualifications (8.3).

8.1 THE SYSTEM FOR OBTAINING QUALIFICATIONS

The macro study has yielded a number of findings with regard to the Dutch system for obtaining qualifications. We have summarized the most important of them.

1 The structure of the labour market has changed. The number of jobs in the professional and personal services sector has dramatically increased. This is not only an expansion, it is also coupled with a process of professionalization. Vocational training addressed to these sectors is increasing sharply.

2 The level of training of the working population has not only risen, but its character has also changed. Much more people with vocational training are coming onto the labour market. The rising level of training is attributable to various causes, some of which conflict with each other, others of which reinforce each other. Thus, there is an externalization of vocational training. Training which formerly took place in the firm (largely on the job) is now being provided in vocational training. This is true both of technical training, administrative jobs and the caring professions. In addition, there is an independent process of longer attendance of education which is tending to result in underutilization or imposing excessive demands. Lastly, in the case of a number of jobs, an actual increase is taking place in the qualifications required in connection with technological renewal but also with higher organizational and commercial requirements (for example, in relation to product quality). The relative importance of those trends cannot be clearly determined. There are large differences between sectors and displacements in time. There appears to be a degree of consensus to the effect that the level of training has outpaced the level of jobs (underutilization), but that, under the influence of shrinking supply and increasing qualifications requirements in a number of sectors and for a growing number of jobs, it is in fact possible to speak of upgrading.

3 A good deal of the increase can be put down to administrative and caring occupations. In these sectors, intermediate vocational training has in general a lower status than in technical occupations. To a much larger extent, these are production jobs for which the apprenticeship system also provides training. The interchangeability of the two training avenues also emerges from the relatively large proportion of further training in these sectors. The question arises as to how far the frequently observed tendency for underutilization also hoods good for these sectors.

4 The Netherlands has a complex system for obtaining qualifications, in which the two main streams of initial education (apprenticeship system and mbo) are supplemented by a differentiated system of industrially-oriented training provided by schools, the

apprenticeship system, firms, branches of industry and private bureaus. This system is currently being restructured, which entails in particular making the initial route more coherent and more flexible.

5 As a result, its place within the provision of qualifications is also altering. To an increasingly pronounced extent, vocational training must be regarded as the beginning of a vocational route, which is in fact a learning path. In the course of his or her working life, a worker will have to undergo further training and change jobs on a number of occasions. This means that the training must afford a broad basis, so that not only technical qualifications are obtained, but also broadly applicable occupational skills and learning and transitional skills. To some extent admittedly, general skills are involved here, but they can most effectively be obtained in the actual context of a firm. There is therefore great merit in reinforcing the practical component of training.

6 This means that the occupational picture on which the training is based must be changed. Old demarcations are dwindling away and different types of tasks are increasingly being integrated. The integration of vocational training and the overlapping of occupations are an express point of interest in the current restructuring of vocational education. One problem is the method employed for the development of occupational profiles, which seems precisely to result in an increase in narrow and unclearly structured descriptions of occupations.

7 There is an important tendency for greater integration of the various learning paths into vocational education. Vocational training schools are being merged into large sectoral schools offering a whole range of long and short training courses. In addition, an attempt is being made to involve industry more in school vocational education both by involving it in the development of training profiles and through integrated training.

8 Alongside integration of the various learning paths and increasing the transparency of the qualifications structure, the quest for "starting qualifications" is an important policy aim. The public authorities assume that training of the level of primary apprenticeship (junior craftsman) is the minimum necessary to work in Dutch industry, also in the longer term. Therefore efforts are being made so as to allow no one to come out of education without such a qualification. The public authorities are endeavouring to conclude agreements on this with both education and industry. Short training courses in mbo and under the apprenticeship system have an important function in this respect in countering premature school leaving. At the present time, it is precisely these forms of trading from which there is much dropping out. Apart from that, a target level has also been formulated below the level of primary apprenticeship. On the one hand, it is feared that a number of students will not reach the level of primary apprenticeship; on the other, firms say that that level will not be needed even in the future for a number of jobs. In that connection, a distinction is being made between starting qualifications (junior craftsman) and basic qualifications (Dutch, mathematics, social/communications skills).

9 In addition to the renewal of vocational education, adult education is also being restructured. Here, too, scaling-up, recognizability and increased coherence are playing a major role, alongside the drive to promote participation in education. In this connection, the role played by industry in the provision of qualifications is very

prominent. Firms are coming more explicitly into the picture as a teaching authority in workers' careers. In the policy of the public authorities, this is being reflected in a closer connection between vocational education and adult education, and in the attempt to stimulate the training efforts made by firms and branches of industry and link them with developments in the field of education. The drive for starting qualifications is not only a major aim of policy with regard to school leavers, but efforts are also being made to achieve starting qualifications for low-trained workers who have not yet reached that level. In addition to specific subsidies, an effort by firms themselves is also expressly reckoned on.

10 In many firms there is a tendency for the required level of qualifications to rise. This involves an increase in the general level, key qualifications and technical qualifications. The major role played by the improvement of quality is of importance. On account of increased market orientation and of the requirements and possibilities of new technology, concern for quality, coupled with improved efficiency, is becoming increasingly central to the drive for new production concepts. The higher level required is to some extent also an expression of displacement or setting demands too high. The increase in the qualifications required also emerges, paradoxically enough, in connection with the so-called untrained jobs which are regarded by industry as difficult to fill. Here the non-recognition of required qualifications probably plays an important role. The distinction made by firms between basic qualifications and the starting qualifications advocated by the public authorities must also be seen in this context.

11 Firms formulate the changed qualification requirements as a requirement on the vocational training system ("a trained person must know and be able to do this"). But people themselves are also contributing towards obtaining qualifications. This results in an increase in the initial training level sought, but it is not confined to this. Both the situation on the labour market and the nature of the required qualifications as specific to the particular firm and workplace require firms to make a training effort of their own. As the training issue becomes more important in company policy, an increasing interaction comes into being between the training system and in-house training. This does not emerge only from firms' involvement in new types of training (such as the banks in the case of a banking course), but also from the expansion of the apprenticeship system, the introduction of vocational training courses of an integrated nature and the drive for starting qualifications.

12 It is hard to speak of a dominant model for obtaining qualifications in the Netherlands. There are too many differences between sectors and branches and also within sectors. Instead, the characteristic feature is the existence of choice. As a result of the existence of two different training routes via schools (intermediate vocational education) and via firms (apprenticeship system), the firm can opt for a greater or lesser degree of internal training. There seems to be a certain tendency for firms to give preference to a more vocationally-oriented and higher level on recruitment. This preferential strategy comes up against problems where there is insufficient supply on the labour market. This is true in particular of persons with intermediate training in technical jobs. This results in a relatively large proportion of job vacancies which are difficult to fill at this level. Supplementation by means of internal training is advocated, *inter alia* on account of

labour-market considerations, by the public authorities and sectoral organizations, but is being put into practice by only a few firms. In so far as it is put into practice, it is only by the larger firms.

13 Nevertheless, firms' training efforts are clearly increasing. In an increasing number of firms, interest is arising for obtaining qualifications in the course of the career. This is prompted by the aforementioned difficulties in filling vacancies, but above all it is a reaction to the on-going changes in technology and organization and the resultant higher qualification requirements in jobs. Internal training is initially aimed at workers who have already undergone vocational training. In addition, these requirements are fulfilled by means of an increased training effort involving groups which until now have scarcely taken part in training (women, low-trained persons, older persons).

14 Given the substantial investment which is needed for training, plus increased awareness of the limitations of formal training outside the workplace, increasing attention is being paid to learning at the workplace or to learning through the organization of work. This comes on to the agenda in particular in applying total management, whereby investment, reorganizations and training are seen as interrelated. The extent to which this policy and the corresponding type of new organization also actual occur on a larger scale is unclear. Conflicting data emerge from investigations, from which although a clear increase is observable, question marks are also raised. There are no direct quantitative data available. Indirect evidence is provided by the attention paid to learning in the ARBO (employment conditions) law and in innovatory projects.

8.2 A NEW TRAINING PHILOSOPHY IN INDUSTRY

In the firms under investigation the contours emerge of this new type of industrial training policy. This type is characterized by its new position within the firm's policy and by new objectives, target groups, methods and actors.

1 Firms' training policies are not confined to eliminating shortcomings in workers' qualifications, but are increasing aimed at preparing for on-going changes in their organization and linked on-going learning processes. This is because, in addition to objectives which are technically specific and specific to the relevant process, great value is attached to obtaining social/communications, organizational and planning knowledge and skills directed at the workplace and attention is paid to the acquisition of basic skills, increasing the general level of training and the acquisition of learning skills. In addition, a general raising of the level is regarded by firms as their task and not longer only that of the education system. This is not regarded as a once-for-all effort, but as a structural component on account not only of recruitment difficulties, but also of the expectation that change will be of an on-going nature. Training and learning at the workplace is regarded in the firms under investigation as an integral component of their policy. In this connection, attention is still in many cases paid to the original problems: the "cause" and background of the new production concepts. Training and learning at the workplace involve both training for new staff and providing them with qualifications (the increasing importance of the internal market; the non-availability of the "right" qualifications) and

training for existing staff. Firms are recruiting at a lower level than the target level (mbo or junior tradesman). This is attributable, on the one hand, to (low) availability and, on the other, to the future outlook as regards persons with mbo diplomas. As a result, more attention is being paid to the internal labour market, coupled with internal training. At the same time, clear final jobs are being created, which reinforces the segmentation of the internal labour market.

2 The new tasks and aims of vocational training also call for a new approach and methods. It is not only a question of increasing training, but also and above all of making training courses more "made-to-measure". Made-to-measure training means that often use cannot be made of available courses. This necessitates investment in the development of training, but it also entails the risk of the training being delayed owing to problems in the development of material. In that connection, the problem also arises that it is easier to find on the training market institutions prepared to provide a course than it is for a firm to find assistance in developing its own training for integration into the organization. This often entails firms themselves experimenting with new forms. In the paint factory, there is purposive collaboration with technical training for the sector as a whole. Partly as a result of this, the model developed in that firm is now also being implemented in other firms in the sector.

3 An ensuing striking characteristic is the emphasis on training at or near the workplace. In this connection, heed is also paid to the interaction between training and individual and collective learning processes at the workplace itself. The training needs not only to prepare workers for new tasks, but also for learning at the workplace as an on-going process. The new organization is characterized by continuing change and improvement. In that connection, (internal) training should be increasingly regarded as a continuous process. Precisely because of their non-incidental nature, a combination of courses (tailored as much as possible to the workplace) and learning at the workplace and the interaction between them assume central importance.

4 In firms, the educational role of the organization of the work is increasing. Learning is being regarded as an integral component of the modernized organization of the work. Here, too, obstacles may arise. Thus, training by rotation is threatened if the rotation stagnates owing to a shortage of staff. Learning at the workplace comes up against problems on the part of workers (who are accustomed to courses and therefore attach more value to them) and on the part of production management. Frequently, management lack the imagination for the integration of learning and working. The background to this is, among other things, the fact that a break is being made with existing practices and "received wisdoms".

5 Learning at the workplace and made-to-measure training entail decentralizing the performance of training. In this connection, new actors emerge. Alongside the training department and the training institutions, an express role is assigned to direct superiors, colleagues and the worker himself as his own teacher. Direct supervisors (heads of groups) are given a major role in on-going training. In the firms under investigation, a clear break can be discerned with the Taylor-type model in the sense that the superior is less able to determine how the work is done. Workers determine more themselves. The

superior's direct supervisory task declines, because part of the responsibility and planning devolves on to the task group and the workers themselves. The group manager is responsible for the boundary conditions and overall organization, having regard to the limits and goals set by the firm. As a result, the supervisor's tasks with regard to coordination, motivation, encouragement and training increase. The extent to which training and learning get off the ground in a given department will strongly depend on the presence of a stimulating supervisor. In the cases, we encountered instances of an even more pronounced involvement of the manager in training where he himself acted as a trainer. Such a change in role imposes requirements on the internal organization of the firm. Managers are often not selected, and also are not trained, with this in mind. They are liable to end up in situation where they have a double commitment, since they are also responsible to the firm for the continuation of production. This increases the need for training policy to be integrated into company policy.

6 It is noticeable that in many cases there is a decentralization of the training effort, as a result of which, in the context of the development of a specific training policy, departments or divisions themselves become responsible for training workers. The central training department becomes less important or switches from being the department with the main responsibility to being a support department. The bank exhibits an exception to that process: there, a high degree of centralization of training has recently taken place.

7 The increase and change in required qualifications are discernible in all the firms. Greater reliance is made on complex, organizational and communications qualifications and skills. Multi-function and multi-skilled workers are being sought. The new situation imposes requirements on workers, who have to develop communications, planning and organizational skills, while at the same time they are given more responsibility for their own, more complex work. But they are also expected to show a positive attitude to change and the readiness to go on learning at and about the workplace. We have seen in the firms that many workers react positively to this, but that obstacles are also experienced. The task group constitutes an important learning place, in which, in addition to the manager's role in training, the principal method of learning is primarily job rotation in conjunction with advice from and consultation with colleagues. Partly because the training role is not the prime aim, tension may well arise with more formal channels for obtaining qualifications.

8.3 MICRO/MACRO RELATIONSHIPS

Lastly, we would make some observations with regard to the consequences of the analyses carried out in the firms for developments and policy objectives at the macro level. In so doing, we shall distinguish between developments in vocational education and adult education. In the first case, there is an indirect relationship between the changes and the training efforts made by the individual firms. In the second case, a number of more direct conclusions can be drawn.

8.3.1 Firms and vocational education

Increasing the involvement of industry in vocational education - both as regards the formulation of objectives (occupational and training profiles) and as regards implementation - is an important policy objective. It is permissible to ask the question as to what extent that relationship is capable of being investigated at the level of individual (departments of) firms, certainly if one is concentrating on the direct effects of particular organizational changes.

In that regard, the cases provide somewhat disillusioning information. On the one hand, we can in fact observe changes in requirements as to qualifications and an increase in the required level of training which fits in with (substantive and quantitative) trends in vocational education. As far as providers of initial training are concerned, the conclusion can be drawn that trainees must be prepared for continuing change and life-long learning. At the same time, it must be observed that the reorganization and modernization of the organization of production often goes hand-in-hand with staff cuts. In the firms investigated, this means that there is scarcely any external recruitment, but that vacancies are primarily filled through the internal labour market and that (therefore) no call is made on the products of vocational education.

In the case of the firms investigated, no change seems to have occurred in their relations with regional intermediate vocational education as a result of the changes which we analysed. It also appears from other investigations that what is involved here is more of an indirect relationship, except where the training is applied as vocational training for the existing personnel. In some cases, the change even seems to detract from the possibility of placing trainees on *stages* in the department, since much greater reliance is placed on employees' knowledge specific to the firm.

That lack of a direct relationship between modernization of education and modernization of the organization of work is also characteristic of the Dutch situation in a broader sense. The coexistence of different models in principle offers the education system possibilities, not merely of paying a passive role following events, but also of playing an active and stimulating part in the further development of new production concepts and skilled work. Teaching methodical, social/communications and strategic key qualifications and developing new forms of occupational action and learning and learning ability as basic skills for workers do not involve any unchallenged "necessary" skills. It is rather a question of linking processes for acquiring qualifications to the possibilities and challenges of modern information and communications technology and to the modernization of the workplace with a view to orchestrating and promoting the new organizational paradigms. The challenge consists in integrating human means and means relating to work organization/development, which could be described as a form of developing inquiry into qualifications. In that sense, it is remarkable and regrettable that the discussion of the relationship between modernization of vocational education and the organization of work is a one-sided one, in which vocational education has to adapt to suit the development of firms, without any possibilities for discussing any interaction.

8.3.2 Firms and adult education

Participation and expansion

Increasing participation in education through encouragement and information is a major policy objective. This appears to be borne out by developments in the firms investigated. In all those firms, an expansion of training effort is involved. To some extent, use is made of normal vocational education (apprenticeships) or contract education (mbo). In this connection, there appears to be much need for tailored training and training dealing with specific aspects. This need is not always even readily picked up by regular training. Thus, one of the firms studied has considerable difficulty in translating the existing technical training into training which, in terms of both content and method, corresponds to the factory floor. If this is successful, that model would appear, however, to be applicable elsewhere. The other firms rely, partly for those reasons, primarily on their own training departments or private training bureaus.

Structure and recognition

A subsequent point worthy of attention relates to the improvement of the coherence and structure of adult education. In this connection, attention is paid to bringing into being a coherent recognition system. Attention is also given to developing the assessment of former learning at the workplace. This reflects needs which the firms in the case studies put forward increasingly strongly. In particular, the paint/adhesive manufacturing firm - in addition to striving to meet ISO standards - pays much attention to the development of a version of the recognized technical training which was geared to its firm. Many problems were encountered because of the absence of a tradition of such a translation of general diploma requirements into final attainment levels geared to situations specific to firms. The changes sought in the qualification structure, in conjunction with the drive for increased regional and sectoral tolerance, seem in this respect to afford better conditions for the future.

Starting qualifications

Alongside the drive for more extensive structuring, the crux of present public policy on adult education is above all starting qualifications. The main reason behind that effort is the expectation that workers will need that minimum level in order to satisfy in the modern work environment, with its large degree of change, higher requirements in terms of qualifications and the need for "continuing learning". The cases show clear support for this expectation.

In principle, everyone is entitled to obtain a minimum starting qualification. That in itself does not amount to a drive for nobody more to leave school without a primary starting qualification and to a new definition of premature school leaving, but it does lead in the identification of a demand to catch up on training on the part of all those workers which do not at present have the minimum level (some 400 000 workers). At national level, agreements have been concluded between employers' organizations, trade unions and the public authorities on the entitlement to obtain a minimum starting qualification. The cases show that, in any event, in firms characterized by new production concepts there is a basis for this development. In particular, the adhesive manufacturer shows that that effort can be

successfully implemented through an integral training policy whereby training and learning at the workplace are coupled with changes in the job structure and in personnel policy. As far as the target groups for the training policy are concerned, it is noticeable that great emphasis is placed on training for production jobs. In that connection, training of low-trained workers is in order. Traditionally, that group has largely fallen outside the training policy of many firms.

For the rest, a marginal note should perhaps be entered against the description of starting qualifications as being of the "level of the primary apprenticeship". In particular, as far as industry is concerned, the minimum necessary level is situated somewhat lower. What is considered in that respect is primarily basic qualifications in Dutch, mathematics and social/communications skills. One of the firms studied was even involved in a plan at the level of the processing industry as a whole for defining these basic qualifications at a lower level. That firm in fact sought for itself workers with a technical diploma. The basic qualifications are, even on that interpretation, indeed regarded as the start of a path of learning during a worker's career.

Annex 1

LIST OF ABBREVIATIONS

ARBO-wet	Arbeidsomstandigheden-wet
ARBVO	Arbeidsvoorziening
BBO	Beroepsbegleidend onderwijs
BE	Basiseducatie
BOOB	Bedrijfstraksgewijs Overleg Onderwijs Bedrijfsleven
CAO	Collectieve Arbeidsovereenkomst
CBB's	Centra voor Beroepsorientatie en Beroepsoefening
CBS	Centraal bureau voor de statistiek
CV	Centra Vakopleiding
(M)DGO	(Middelbaar) Dienstverlenend en gezondheidszorg onderwijs
HAVO	Hoger algemeen voortgezet onderwijs (senior general secondary school)
HBO	Hoger beroepsonderwijs (higher vocational education)
KMBO	Kort middelbaar beroepsonderwijs (short senior secondary vocational courses)
LBO	Lager beroepsonderwijs (junior secondary vocational education)
LTO	Lager technisch onderwijs
MAVO	Middelbaar algemeen voortgezet onderwijs (junior general secondary education)
MBO	Middelbaar beroepsonderwijs (senior secondary vocational education)
MKB	Midden- en kleinbedrijf
MOW	Ministerie van Onderwijs en Wetenschappen
MTS	Middelbaar technisch onderwijs
OSA	Organisatie voor strategisch arbeidsmarktonderzoek
O&S-programma	Oriënterende en schakelende programma's
ROC	Regionaal opleidingscentrum
SCO	Stichting Centrum voor Onderwijsonderzoek (Centre for educational research)
SO	Speciaal onderwijs
SVM	Sectorvorming en vernieuwing van het middelbaar beroepsonderwijs
SVS	Stichting vakopleiding schildersbedrijf
VAPRO	Vakopleiding procesindustrie
VAVO	Voortgezet algemeen volwassenenonderwijs
VBO	Voorbereidend beroepsonderwijs
VE	Volwassenen-educatie
VWO	Voorbereidend wetenschappelijk onderwijs (pre-university education)
WEBA	Welzijn bij de arbeid

BIBLIOGRAPHY

Advies van de tijdelijke adviescommissie Onderwijs-Arbeidsmarkt, (1990). **Onderwijsarbeidsmarkt naar een werkzaam traject**. Alphen an de Rijn: Samson.

Alders, B. Christis, J., (1988). Arbeid en recrutering in de machinebouw. Of: "Hoe efficient wordt de CNC-technologie in de praktijk toegepast?". In: **Tijdschrift voor Arbeidsvraagstukken**. Jrg. 4, (nr. 4), pp. 72-87.

Allaart, P. C., Kunnen, R., Stiphout, H. A. van, Vosse, J. P., (1991). **Trendrapport. Vraag naar arbeid 1991**. Den Haag: OSA-rapport nr. 11.

Allaart, P. C., Kunnen, R., Stiphout, H. A. van, Vosse, J. P. (1991). **Trendrapport, Aanboud van arbeid 1991**. Den Haag: OSA-rapport nr. 12.

Berntsen, A., Snoeken, H., (1990). **Nederlands op de werkvloer**. Verzamelde artikelen over arbeidsmarktgericht taalonderwijs. Amsterdam: Studiecentrum Nederlands op de Werlvloer.

Bilderbeek, R., Buitelaar, W., (1990). **Informatisiering en organisatie-strategie in de bankensector**. Apeldoorn/Rotterdam: TNO/STB/RISBO.

Bilderbeek, R. H., Alders, R. C. M., Buitelaar, W. L., (1992). **Nieuwe productiesystemen in de procesindustrie. Veranderingen in organisatie en kernfuncties**. Den Haag, COB/SER.

Boot, P. A., Bedrijfsopleidingen. Ontwikkelingen, knelpunten en kansen, (1988). In: Tijdschrift voor Arbeidsvraagstukken. Jrg. 4, (nr. 1), pp. 27-36.

Boot, P., Her- en bijscholing van werkenden, een inleiding, (1989). In: **TPE 12/3**

Brandsma, J., Peters, F. **De markt van de volwasseneneducatie**. Enschede/Bunnik, OCTO/A&O (in voorbereiding).

Bruijn, E. de, Nieuwenhuis, A. F. M., (1992). **Opleidingen tussen beroep en markt: een bereopentheoretische analyse van de ontwikkeling van beroepsopleidingen**. Paper voor de Negende Onderwijssociologische Conferentie, SCO/RISBO, Amsterdam/Rotterdam, 1992.

Bruijn, E. de, (m.m.v. Dronkers, J., Durek-Vriesema, C. en Vermeulen A. C. A. M.), (1993) **Contractactiviteiten door onderwijsinstellingen, vormgeving en effecten**. A&=, Adviescentrum opllllllleidingsvraagstukken. (Beleidsstudies BVE; no. 5).

CBS, **De Nederlandse jeugd en haar onderwijs**. Den Haag, Staatsuitgeverij, 1980/81, 1985/86; 1990/91.

CBS, (1988). **Bedrijfsopleidingen in Nederland 1986**. Heerlen, CBS.

CBS (1990). **Volwasseneneducatie, statistisch overzicht 1988**, Den Haag, SDU.

CBS, (1992), **Statistiek van het Middelbaar beroepsonderwijs 1990/1991**. Voorburg/Heerlen: Centraal Bureau voor de statistiek.

CBS, (1993). **Bedrijfsopleidingen in Nederland 1990**. Den Haag, SDU.

COB/SER, (1990), **Zelfstandig samenwerken in autonome taakgroepen**. Den Haag, COB/SER.

Colenbrander, H. B., Bruning, C. A., (1982). **Funktieklassifikatiemethoden**. Een onderzoek naar toegankelijkheid, aanvaardbaarheid en openheid van methodikien. Rotterdam/Alphen aan de Rijn: Samson.

Jong, J. A. de, (1992). **Structured on-the-job training in the Netherlands**. Bijdrage aan de ECER-conferentie, Enschede.

Jong, M. W. de, Moerkamp, T., Onstenk, J. H. A. M., Babeliowsky, M., (1990). **Breed toepasbare beroepskwalificaties in leeplan en beroepspraktijk**, SCO-rapport 230, Amsterdam.

Kessels, J. W. M., Smit, C. A. (red.), (1989). **Handboek Opleiders in Organisaties**. Deventer, Kluwer.
Kloosterman, R. C., Elfring, T., (1991). **Werken in Nederland**. Schoonhoven: Academic Service.
Koning, J. de, Gelderblom, A., Hammink, A., Olieman, R., (1991). **Bedrijfsopleidingen: omvang, aard, verdeling en effecten**. Beleidsstudies VE No. 1, Utrecht, RVE/NE.I
Kraayvanger, G., Onna, B, van, (1985). **Arbeid en Leren**. Bijdragen tot de volwasseneneducatie, Baarn, Nelissen.
Krogt, F. J. van der, (1991) Aansluitingsstrategieen en opleidingsactiviteiten in verschillende organisatietypen. In: **Tijdschrift voor arbeidsvraagstukken**. Jrg. 7, (nr. 4), pp. 3-15.
Kruijd, D. (red.), (1991), **Opeliden op de werkplek**, Capita Selecta, Handboek opleiders in organisaties, Deventer, Kluwer.
Meenk, L. M., Mohr, P. G., **Scholing Direkt Produktieven**. (1990). In: De vakman op weg naar 2000. Congresmap, Amsterdam, NTS.
Meer, J. D. van der, (1988). **Voorsprung door opleiden**. Human resources management in een veranderende omgeving: ervaringen van middelgrote bedrijven. Den Haag, COB/SER.
Ministerie van Sociale Zaken en Werkgelegenheid (1991, 1992). **Kwartaalbericht Arbeidsmarkt**. Rijswijk.

Ministerie van Sociale Zaken en Werkgelegenheid (1991). **Schoolverlatersbrief**. Rijswijk.
Moerkamp, T., Onstenk, J. H. A. M. (1991). **Van beroep naar opleiding**. Inventarisatie van procedures voor het ontwikkelen van beroepsprofielen. Utrecht, RVE/SCO.
Moerkamp, T., Bruijn, E. de, (1991). **Leren voor een loopbaan**. Den Haag, OSA
Molenaar, H., (1992). **Het effect van een bedrijfsopleiding tijdens een organisatieverandering**. Tilburg, KUB
MOW (1986). **Beroepsprofiel- en leerplanontwikkeling beroepsonderwijs**. Brief van de Staatssecretaris van Onderwijs en Wetenschappen. Tweede Kamer, vergaderjaar 1985-1986, 19477, nrs 1 en 2, Den Haag
MOW (1991), **Naar landelijke organen van het beroepsonderwijs**. Zoetermeer: Ministerie van Onderwijs en Wetenschappen.
MOW (1992), **Beroepsonderwijs in Nederland**. Eindrapportage OECD-project "The changing role of vocational and technical education", (Concept). Zoetermeyer: Ministerie van Onderwijs en Wetenschappen.
MOW (1993). **Blijven leren**. Ontwikkelingsperspectief voor de volwasseneducatie in brede zin. Discussienota. Zoetermeyer: Ministerie van Onderwijs en Wetenschappen.
Mulder, M., Akkerman, J. S., Bentvelsen, N., (1988). **Bedrijfsopleidingen in Nederland**. Den Haag, SVO-Selectareeks.
Nieuwenhuis, A. F. M. (red.) (1992). **Scholing: onderzoek en beleid**. Effectief scholingsbeleid voor markt en beroep. Utrecht, Lemma.
Onstenk, J. H. A. M., Voncken, E., (1992). **Labour market, Vocational education and company training**. Policies in the Netherlands, Presentation and summary of the CEDEFOP macro-study. Amsterdam, SCO.

CEDEFOP — European Centre for the Development of Vocational Training

The role of the company in generating skills
The learning effects of work organization
The Netherlands

Jeroen Onstenk
Eva Voncken
SCO-Kohnstamm Instituut

CEDEFOP Document

Luxembourg: Office for Official Publications of the European Communities

1996 — VI, 68 pp. — 21.0 x 29.7 cm

ISBN 92-827-0374-6

Price (excluding VAT) in Luxembourg: ECU 8

European Centre for the Development of Vocational Training
Marinou Antipa 12, **GR-57001 Thessaloniki**
Tel. (30-31) 49 01 11; Fax (30-31) 49 01 02
E-mail: info@cedefop.gr

CEDEFOP

04 05 16 HX-96-96-271-EN-C

Price (excluding VAT) in Luxembourg: ECU 8

ISBN 92-827-0374-6

OFFICE FOR OFFICIAL PUBLICATIONS
OF THE EUROPEAN COMMUNITIES
L-2985 Luxembourg

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐

This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").